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# The Clay Worker's Library

## BOOKS YOU NEED

**Every clayworker desires to do his best. To do one's best, a man must bring to the aid of his OWN knowledge and experience, the knowledge and experience of others. The best practice, the best knowledge, the "know-how" of experience are condensed in these volumes. It will pay you to add some of them to your library.**

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| Brickmakers' Manual | 3.00 |
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| Clayworking Industry of the U. S. (Ries) | 2.50 |
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| Bibliography of Clays and Ceramic Arts | 2.00 |
| Economic Geology (Ries) | 3.50 |
| How to Analyze Clay | 1.00 |
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| Life of Cement, by Wheat. (Write for prices) | |

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| Gas Engines and Producer Gas Plants | 2.50 |
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| | |
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| Electricity (for beginners) | .25 |
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| Electric Lighting | .25 |

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| Tulley's Handbook | 3.50 |
| Engine-Room Chemistry | 1.00 |
| The Compound Engine (Tennant) | 1.00 |
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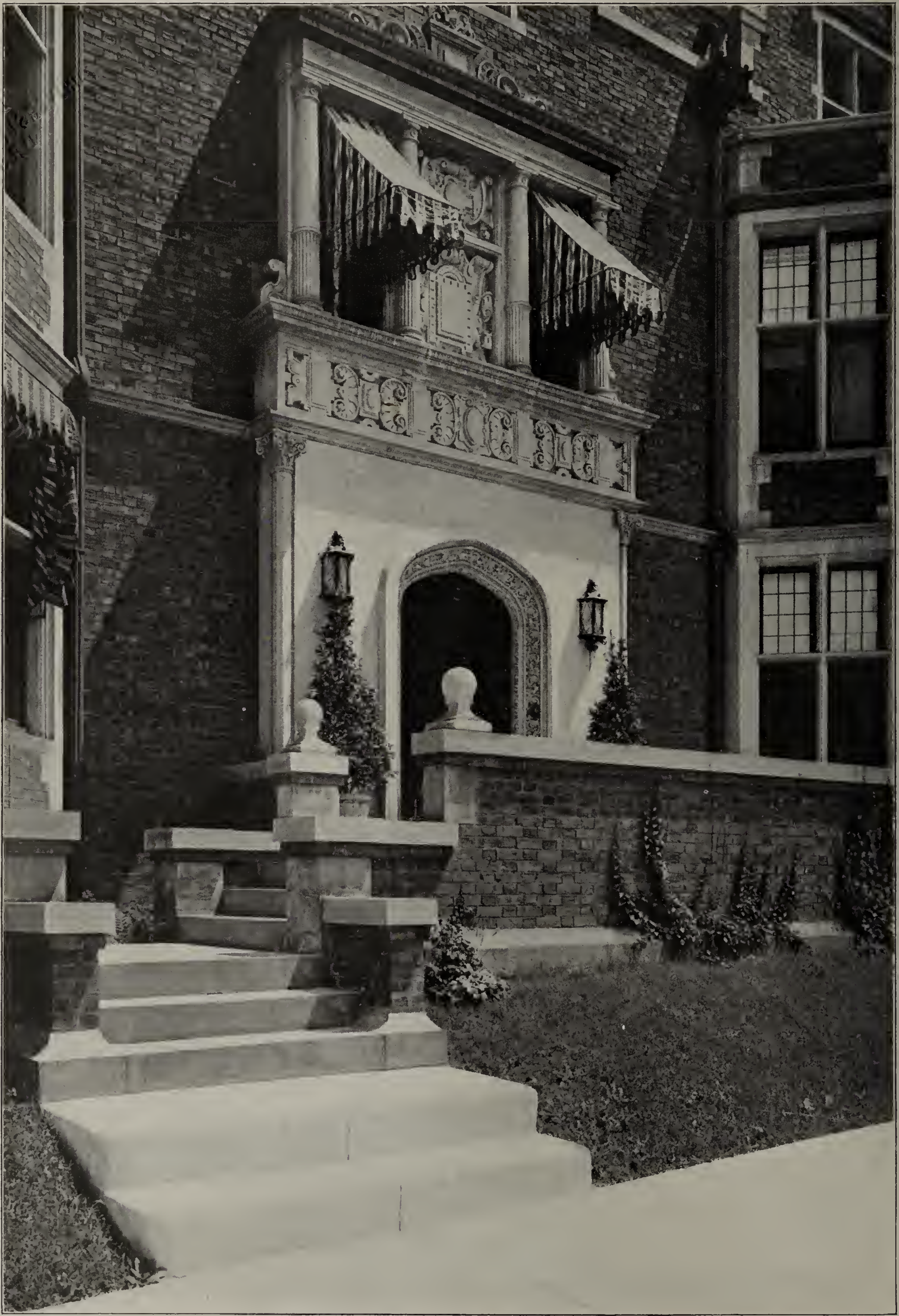


Harmony and Texture in Brick Facing

VOL. XXXVIII—NO. 1

BRICK
AND CLAY RECORD

JANUARY 1, 1911

# A Sure Way to a Happy Nineteen Eleven

TO SOAR—throw out ballast. Get rid of all old prejudices, grudges and grouches—you will be surprised how light your heart will be when you are rid of these unnecessary loads. Forget all grievances against your fellow men.

Be determined to keep smilin'.

Put the Golden Rule in practice.

Judge men not by single acts, but by the sum of all their acts up to date.

When men fail—be fair. The one who has failed has suffered most. Lift him up—don't push him down further. Supposing you had faced his conditions, his past, his environments, without the influences that have made you strong, would you have stood strong? Be honest.

Some struggle with temptations, trials and discouragements of which you know nothing—if known the wonder would be that they stood so long.

Most people find what they look for. Look for the best in those about you. It is there, you will find it.

The pessimist fails, the optimist succeeds—be a winner.

Every success comes from a resolution. Supposing some resolutions are broken—many seeds never sprout, still farmers continue to sow.

The road to endeavor is paved with good resolutions.

Here's to 1911. Make it of vitrified—impervious—never-wear-out good resolutions. Keep them.

# Keeping Pace With Progress

THE high desire of mankind is to know the future, to foresee and forestall events. Having learned to associate cause and effect, we realize that tomorrow is born of today, that future pains and pleasures are largely predetermined by present acts. We are borne upon the turbulent stream of events. Unable to stem the current, our great concern is to know its direction, our whole care to find the true channel. And this is called progress. The present status of the clay industry in the industrial world can be taken as a good example of the industrial progress of the last few years.

There are many veterans of the clay industry who can remember the time, not so many years ago, when the value of the annual production of clay products represented a comparatively insignificant proportion of the industrial activities of the country. They can remember the time when a brick was simply a brick, without much regard to color, texture or quality, and when tests to prove quality were unheard of. In those days the paving brick or block, such as is used at the present time, had not yet been perfected; the largest proportion of our refractories came from England and Scotland; the production of agricultural drain tile was practically nil, and such sewer pipe as was produced would today hardly be accepted for farm underdrainage. At that time practically all of our pottery came from abroad and no one could have imagined that this branch of the clay industry would ever be developed in America to its present importance.

These pioneers can also remember when the manufacture of brick was the most primitive operation. Little was needed to establish a brick yard beyond the construction of a sod pit, the erection of a home-made tempering wheel and the purchase of a blind mule to operate the plant. Brick, while always used extensively for building construction, presented no variety for architectural effects and terra cotta and hollow fire-proofing were unknown to the building fraternity.

That the clay industry has developed within a very few years from a primitive state to its present importance is a most remarkable evidence of the industrial progress of this country. Only ten years ago the annual production of clay products in the United States was less than one hundred million dollars, while today the figure has almost reached the two hundred million mark and the clay industries of the country represent an invested capital of $250,000,000. From a comparatively unimportant position clay products now rank fourth in value, as compared with other mineral products of the country, and among the great industries of the day clay products stand well to the front in importance and in the value of annual output.

The veteran clay workers who have participated in this great industrial development may well be proud of the progress which has been made and it is with great pride and pleasure that the publishers review the part *Brick* has played for seventeen years in the development of this industry.

In every great field of industrial endeavor the trade press has become an institution, without which progress would be retarded. The trade press is a vehicle of communication for the convenience of the manufacturer and without it he would be isolated and dependent upon his own resources and his own knowledge. Without the trade press the art would not today be in the advanced state in which we find it, and the manufacturer would necessarily be compelled to conduct his own investigations and he would lack that encouragement and incentive which comes only from a close association and intermingling of methods and of ideas. The trade press has welded the isolated manufacturers into one great brotherhood and through the exchange of information and the dissemination of practical knowledge might well be termed "the melting pot" of the clay industry.

The publishers feel that the time has arrived when *Brick* can no longer serve the clay industry to the best advantage with twelve issues per year. If there is to be no diminution of that spirit of progress which has been so paramount in the editorial and business conduct of *Brick* since its conception, it is believed *Brick* must be published with greater frequency. It is therefore with considerable pleasure that the publishers are able to announce the purchase of *The Clay Record.* On January 1st, 1911, *Brick* and *The Clay Record* were consolidated and are now published as one semi-monthly, *Brick and Clay Record.* Notwithstanding the fact that subscribers to both of the old publications will receive twenty-four, instead of twelve copies per year, the annual subscription price of $1.00 per year will remain unchanged. The high standard of excellence which has always characterized *Brick* will be maintained.

The consolidation of *Brick* and *The Clay Record* is brought about through the desire of the publishers to render greater service to the clay fraternity and as a timely recognition of industrial progress. It has always been the policy of *Brick* to lead, rather than follow, and to anticipate progress, rather than trail along in its wake.

"Service" will continue to be *Brick's* one slogan; service for the subscriber, service for the advertiser, and service for the great industry it represents.

The founding of trade journals in the clay industry marked the period of awakening toward the improvement of methods in clay working operations and their growth and progress have been identical with the growth and progress of the industry. *Brick* was born some seventeen years ago at a time when the increasing importance of the clay industry demonstrated the need for such a periodical. From its very inception *Brick* assumed a high standard and has maintained that standard throughout all these years. The character of its contents, its editorial policy and the quality of its execution have been the best that it has been possible to produce. Today *Brick* ranks among the leading trade journals of the country and in quality and appearance has kept pace with the remarkable growth of the industry which it represents.

Another journal of the trade which has been of most meritorious service is *The Clay Record.* It was established 19 years ago by that veteran of the industry, Geo. H. Hartwell, and during all these years of progress, *The Clay Record* has been an important factor in the industry. Its red covers are familiar throughout the length and breadth of the land. Some years ago, appreciating the demand for more frequent service, the publisher commenced issuing *The Clay Record* semi-monthly and since that time *The Clay Record* has been the only semi-monthly in the clay-working field. It is a regular visitor twice a month to thousands of clay working plants throughout the United States and Canada and its visits have ever been welcome because of the abundance of trade news which it has always carried. Its advertisers have given it credit for very satisfactory results, proving its merit and strength to the trade.

The new *Brick* will, at a cost of only a few cents per issue, provide the reader with a fund of facts, helps and information that would not otherwise be available except through expensive experience and experiments. *Brick* will spread before its readers twice each month a constantly changing and interesting explanation of the improvements in methods, equipment and machinery, as applied to the clay working industry, and will keep the progressive manufacturer of clay products in constant touch with the state of the art. Subscribers will receive every possible help in the way of suggestions, descriptions, records, and information that will aid them in their work and in developing their own particular interests. Expense will not be considered in connection with the gathering of important features which are of interest and of value, including articles descriptive of plants of various types and important articles prepared by well known authorities, interesting correspondence and news letters from all parts of the country and, as in the past, the illustrations will be one of the chief features of the reading columns. Good pictures frequently convey more meaning to a reader than words.

With the greatly increased subscription list, brought about through the consolidation with *The Clay Record,* and with the greater frequency of publication, the publishers of *Brick* fully realize the increased responsibility which they have incurred and their endeavor will be to maintain the highest standard, both with respect to the character of the contents, and also in the quality of printing, to the end that the members of the clay fraternity will be enabled to point with pride to the possession of a trade publication which is not excelled in any other field. No active clay worker can afford to be without a regular copy of *Brick,* and it naturally follows that the advertiser who desires to reach the manufacturer can be assured of the best possible distribution.

The publishers realize that the individual success of *Brick* and *The Clay Record* is due to the co-operation and support of the clay working fraternity, and it is thought that the new *Brick* will continue to receive this support.

# MIDDLE WEST CONVENTION

## Remarkably Large Attendance Assured for the Big Gathering of Brick and Tile Men, to be held in Chicago, January 17-18-19.

Letters pouring in to Secretary Hartwell from clay products manufacturers in all the nearby states, indicate not only a very large attendance at the coming Middle West Clay Convention, to be held in Chicago, January 17th, 18th and 19th, but also show that this gathering will be fully representative of all branches of the clay working industries, and of all the central western states. Prominent clay men from Ohio, Michigan, Wisconsin, Indiana, Minnesota, the Dakotas, Iowa. Kansas, Nebraska, and Missouri, as well as from the state of Illinois, have signified their intention of being present. The meeting will be one of national importance.

The elaborate preparations being made for the entertainment of the guests and the remarkably interesting and valuable program will make it worth the while of any brick and tile manufacturer within five hundred miles of Chicago to attend this convention. Further than this, the attractions of Chicago itself are by no means small, and doubtless many will take this opportunity to visit the metropolis of the middle west. A gathering of this kind offers an excellent opportunity for the arranging of business appointments and this opportunity will doubtless be made the most of, especially in the matter of sales agreements between brick manufacturers and dealers.

PANORAMIC VIEW OF LAKE FRONT FROM
RANDOLPH TO 12st ST. CHICAGO.
Copyr

Chicago, the City of Brick.

The tentative program is published herewith, although same does not include the names of the speakers, as the official program has not yet been issued by the Secretary. The papers have been prepared by leading authorities, and are all of a practical and interesting character. Those attending can be sure there will not be a dull moment during any of the sessions.

It is particularly urged upon those who attend the convention that they bring with them samples of their products to add to the exhibit of clay products which will be one of the features of the convention. It is desired that this exhibit be representative of all the various kinds of brick, tile and clay ware made through the middle west.

Every facility has been provided by the Palmer House for entertaining the delegates and to make their stay in the city pleasant. This famous hostelry will be found an exceptionally satisfactory place for the holding of such a convention. Those who expect to attend the convention should advise the secretary promptly, and if desired he will make arrangements for their accommodation at the Palmer House.

It is quite certain now that a considerable number of those who attend will bring their ladies with them, and special provision has been made for their entertainment. The Chicago Ladies' Reception Committee will take them in charge, and will look after their enjoyment throughout the meeting.

It is believed that an opportunity for a meeting of the clay working fraternity of adjoining states, at a central point like Chicago, would be of great benefit to the industry and would prove very enjoyable and interesting to those who attend.

One reason that has prompted the enlarging of the scope of this convention, is the fact that the program is of such an unusually important and interesting character and the social features so attractive that those in charge of the arrangements desire that as many clay workers as possible share in the benefits of the meeting. It is, therefore, with much pleasure that the Illinois Clay Manufacturers extend a cordial invitation to their brethren of the industry from all the nearby states, to join with them at Chicago and take part in what they believe will be one of the most important and enjoyable clay conventions ever held. Chicago offers the glad hand to all who will attend. Very elaborate arrangements are being made by the local committees, for the entertainment and social enjoyment of the visitors and a particularly cordial invitation is extended to the ladies and it is expected that a large number of the clay manufacturers who attend will bring their wives and daughters. Arrangements have been made for the special entertainment of the ladies who attend, including a shopping trip through the great Marshall Field & Co.'s store, theater parties, etc.

The big social feature of the convention will be the magnificent banquet given by the Chicago hosts to their guests. This banquet will not be of the dull and uninteresting variety but it will be enlivened by proper entertainment and by exceptionally interesting talks from a number of brilliant speakers. A toastmaster has been selected, who is famous throughout the country for his ability in that capacity and for his faculty of keeping the guests in good humor.

Arrangements have been made to enable all who may desire, to visit some of the great clay working enterprises adjacent to Chicago, where many new and wonderful features of equipment have been adopted and are in practical use.

Chicago, itself, offers undisputed attractions and doubtless many will be influenced to come to the convention through a desire to visit this great metropolis. There are many points of interest in and about Chicago well worth visiting and which would make an extra day's stay of value.

The chief feature that will result in a large attendance is the extraordinary importance and interest of the convention program which has been prepared. In the arrangement of this program, it has been the endeavor to include only such subjects as would be of real interest and practical importance to the clay products manufacturers; this idea has been carried out fully through the entire program. Those who attend can be assured that every session will be full of interest in the discussion of live subjects and the important papers which have been prepared will give those who attend many ideas of practical value.

Owing to the special importance of the convention program, it has been decided to hold at least five complete half-day sessions. It is, therefore, planned to have the delegates gather on Monday evening, Jan. 16th, so that all the preliminary registration and other arrangements can be attended to, ready for the interesting session on Tuesday morning. There will be no evening sessions, the evenings being fully taken up by the special entertainments that will be provided.

One advantage in the selection of Chicago for such a convention is in its splendid transportation facilities. Clay workers from all parts of the country can secure advantageous railway accommodations and the central location of the city makes the convention within traveling distance of a large area.

"Meet us in Chicago" will be the slogan of the clay workers throughout the states of Illinois, Missouri, Indiana, Ohio, Michigan, Wisconsin, Minnesota, Iowa and the great north and southwest for the next few weeks. This gathering offers a great opportunity for the meeting of friends and for the making of business appointments, as well as an unusually attractive pleasure trip.

Chicago offers a hearty welcome to all, and the representatives of the clay industry in this city will do their utmost to give their guests an enjoyable time.

### Tuesday Morning, January 17.

ADDRESS OF WELCOME—By Hon. Geo. H. White, representing his honor, Mayor Busse.

PRESIDENT'S ADDRESS—By D. C. Haeger.

REVERSE DRAINAGE OR SUB-IRRIGATION—Methods of tiling for dry ground and dry seasons, offering a new field for development of the drain tile industry.

SURFACE EFFECTS ON FACE BRICKS—Setting forth the modern methods of rough-face wire-cure brick manufacture.

WHAT TAKES PLACE IN A DIE—Every stiff mud clay manufacturer will learn something from this paper which will help him out of frequent troubles.

PRACTICAL IDEAS ON CLAY PLANTS—Hints for the manufacturer that will enable him to effect new economies.

WASTE HEAT DRYING FROM SCOVE KILNS—The possibilities of adapting this method of drying for those burning their ware in temporary kilns and its possibilities for fuel economy.

LIGHTING CLAY PLANTS—Some practical ideas regarding different methods and their comparative advantages.

### Tuesday Afternoon, January 17.

THE SUPERIORITY OF CLAY FIRE PROOFING OVER CONCRETE.

THE TEXTILE PRINCIPLE IN BRICK-WORK—Working with the architect for better architectural effects.

THE TUNNEL KILN—Notes on the many saving methods employed abroad and their application to American conditions.

CENTER STACK DOWN DRY KILN—Its merits, advantages and possibilities for use by central west clayworkers.

THE ECONOMY OF ELECTRICITY FOR POWER—Utilization of central station current and elimination of the line shaft.

LIABILITY INSURANCE—How the clay manufacturer can protect himself against extraordinary losses through accidents.

TILE DRAINAGE INVESTIGATONS—A review from a famous drainage engineer of the progress made in drain-tile development and the future of the tile business.

### Wednesday Morning, January 18.

THE SELLING OF CLAY GOODS—Practical suggestions showing successful methods employed in this important end of the clay business. How to increase your sales.

BRICK AS PAVING MATERIAL FOR TOWNS AND COUNTRY ROADS—Automobile traffic is fast making brick an absolute necessity as a road surfacing.

PRODUCER GAS AND ITS POSSIBILITIES IN CONNECTION WITH THE CONTINUOUS KILN—The present status of this method of burning in America.

THE PIECE SYSTEM FOR PAYING EMPLOYEES—A comparison of its advantages as against time wages.

WHAT THE CERAMIC DEPARTMENT OF THE UNIVERSITY OF ILLINOIS IS DOING FOR THE CLAYWORKERS OF THE MIDDLE WEST.

THE SALT GLAZING PROCESS—It is possible that within a few years drain-tile manufacturers will be salt glazing their tile.

### Wednesday Afternoon, January 18.

THE MANUFACTURE OF FIRE RICK FROM ILLINOIS CLAYS—Showing lantern slides of a successful plant from the clay bank to the kilns.

NOTES ON HEAT INSULATION.

THE SMALL VS. THE LARGE TILE PLANT—How competition is developing the drain-tile business.

DIFFERENT METHODS IN CLAY MINING—Practical ideas in the procuring and stripping of clay.

HOW TO OBTAIN EQUITABLE AND IMPARTIAL FREIGHT RATES—Showing how to establish, interpret and apply them.

OIL VS. COAL FOR BURNING CLAY WARE—Comparative cost figures showing the point of economy.

NEW SUBJECT BY BLEININGER—Some German results in the improvement of stoneware bodies and glazes.

### Thursday Morning, January 19.

THE WORK OF THE ILLINOIS GEOLOGICAL SURVEY IN LOCATING NEW CLAY DEPOSITS.

FIRE PROTECTION—Its cost to the clayworker and the ratio of cost to average losses.

SEWER PIPE AND CONDUIT MANUFACTURE.

HOLLOW BLOCKS—Their growing popularity as a building material. Interlocking and facing blocks.

THE ELIMINATION OF SULPHUR SMOKE IN BURNING BRICK—Something interesting to those that are bothered with the smoke nuisance.

BUSINESS SESSION—Election of officers.

### Thursday Afternoon, January 19.

A TRIP WILL BE ARRANGED TO ONE OF THE LARGEST CHICAGO BRICK PLANTS—Showing the new system of setting brick.

VISIT TO THE GREAT CHICAGO STOCK YARDS.

### MIDDLE WEST CLAYMAKERS' ANNUAL BANQUET.

This banquet is given to the visiting delegates by their hosts, the clayworking interests of Chicago, and it is planned to make it the most enjoyable feature of the convention. It will be held in the big Palmer House Banquet Hall, which will be especially decorated for the occasion.

### ENTERTAINMENT FOR THE LADIES.

Entertainment will be provided for the ladies, which will include theatre parties, a visit to the great Marshall Field & Co. stores, shopping tours, luncheons, etc., conducted by a committee of Chicago ladies.

### THE EXHIBIT ROOM.

The exhibit rooms are adjoining the convention hall and are large enough to accommodate all members. Exhibits are especially asked for of all clay materials, models of brick machinery, catalogues and samples. Space is free and limited to 10 square feet to each member. Samples can be sent express prepaid to the Secretary I. C. M. A., Palmer House, Chicago. Marked for exhibit room.

Architects, Builders, Contractors and Material men will be invited to examine the exhibits.

Through the courtesy of the Faculty of the Ceramic Department of the University of Illinois the annual meeting of the Clayworkers' Institute will be abandoned this year, the members of that faculty centering their efforts in behalf of the program of the middle west convention. Among the faculty who will deliver papers and assist in the discussions are: Professors A. V. Bleininger, R. T. Stull and E. T. Montgomery.

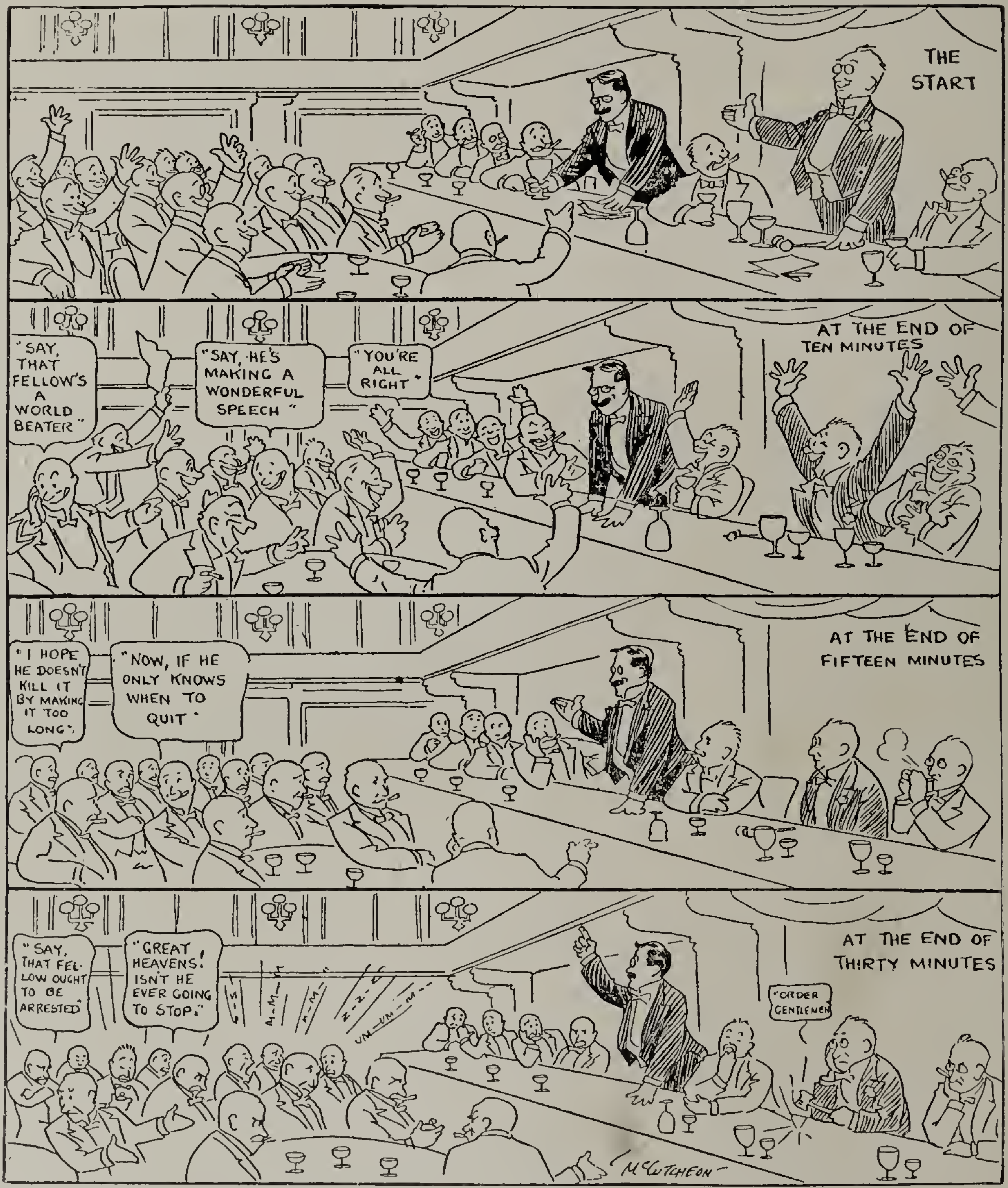
Prof. Bleininger was formerly chief of the Ceramic Department of the U. S. Geological Survey, but has recently become the head of the Ceramic Department of the University of Illinois. He never fails to make his papers interesting and is always willing to contribute freely to the discussions.

**The above program, while incomplete, gives a general idea of the subjects selected, and the Official Program, which will be distributed soon, will give the names of each of the speakers and of those who are to lead in the various important discussions. The time of reading the papers is subject to change.**

All clay manufacturers and those identified with the industry are invited to attend the meeting. For further information, address George H. Hartwell, Secretary, 303 Dearborn Steet, Chicago, Ill. Ninth Floor, Plymouth Building.

# CHICAGO AS A CLAY CENTER

## Extent of Its Common Brick Interests and Growing and Selling Importance in Other Lines of Clay Manufacture


THE START
AT THE END OF TEN MINUTES
"SAY, THAT FELLOW'S A WORLD BEATER"
"SAY, HE'S MAKING A WONDERFUL SPEECH"
"YOU'RE ALL RIGHT"
AT THE END OF FIFTEEN MINUTES
"I HOPE HE DOESN'T KILL IT BY MAKING IT TOO LONG".
"NOW, IF HE ONLY KNOWS WHEN TO QUIT"
AT THE END OF THIRTY MINUTES
"SAY, THAT FELLOW OUGHT TO BE ARRESTED"
"GREAT HEAVENS! ISN'T HE EVER GOING TO STOP."
M-M-M-
Z-Z-Z
UM-UM-M-
"ORDER GENTLEMEN
M'CUTCHEON

The Convention Banquet Is Frequently Like This—But—
Speeches at the Middle West Convention Banquet Will Be Limited to Ten Minutes.

The clay industry of the United States is most important. It has only two rivals for the first place in value of product: the one is coal and the other is iron. In the common brick branch of the clay industry Chicago has no equal and has become a world's center in brickmaking. A fact of no less importance in Chicago is that Chicago uses most of the brick it produces. Nowhere in the world are brick so generally used as in Chicago. So great is the local consumption that it has required a revolution of the brick manufacturing business to keep pace with the local demand. This revolution in methods has not occurred once, but twice, and thrice, and once again. The government census shows that Chicago makes one-tenth of all the common brick made in the United States, and she uses most of what she makes.

Away back in the '70s Chicago took on a new growth. Brick were made in Chicago then in the old-fashioned way, by hand. The call for more brick increased the number of plants, but the old methods remained in vogue. Greater and greater demand made it absolutely necessary to find more rapid methods, or to get other building material. As there was no material for building equal to brick, the methods were changed, and machines were invented and introduced which doubled capacities. But time and time again faster methods were introduced, until in 1909 1,000,000,000 of brick were made that year in the thirty-three Chicago brick factories, and the supply this spring was 150,000,000 brick short. In an effort to again place the supply ahead of the demand all the brick plants in the Chicago territory are installing new machinery which will double the possible output without any material increase in labor. Every Chicago brick plant is a busy place just now, and over a million dollars are being spent by the plants to increase their capacity. Of the thirty-three brick plants operating in the Chicago territory, twenty are owned and operated by the Illinois Brick company. Of the total output, a trifle over half is produced by these plants. In the past year this company has built one additional model plant with a possible output of 300,000 brick a day and has purchased five other plants in an effort to keep its supply equal to the demand. This same spirit of progress has been shown by all the other plants in the Chicago territory, with the result that the close of the present season will see them able to take care of any demand which may arise for brick, even though the increase in demand may be as great in the next few years as it has been in the past year.

The wide use of brick in Chicago is not merely a happening nor is it without great benefits and advantages. Brick are by far the best fire retardant attainable for the construction of office buildings, factories and residences. Brick are the only building material whih are fire tested before delivery. They are burned in their making, so that when they are delivered they are pratically impervious to fire, because all the vegetable or combustible matter has been already burned from them. The use of brick, therefore, is an insurance against fire. It is also an assurance of the minimum amount of depreciation and necessary repairs. So general have these facts become known that brick are coming more and more into use for every class of construction, and some of the most handsome Chicago residences are being built of brick.

New styles of architecture and new conceptions of handling and laying of brick places this building material in the lead, architecturally, as well as from a utilitarian and economical standpoint. The result of this prevalence of Chicago brick in building Chicago is that the fire loss per capita is gradually becoming less and less. Government reports show that for each person in the United States the average fire loss is $2.50 each year. Chicago, through her wisdom in the use of brick, has cut the fire loss per capita down to $1.75. Under these circumstances it is little wonder that brick are the popular building material in Chicago, and that they are the dominant factor in building construction. The Chiago habit of building with brick and other fireproof building material has caused the whole of the United States to stop and consider, with the result that more and more buildings are properly built of burned clay products each year.

Uncle Sam himself is a strong advocate of brick as a building material, because he has found it best, and by the use of burned clay products in building government structures Uncle Sam has cut his fire loss to a minimum and has underwritten his own insurance. This adoption of brick by the government as the best building material has been after careful study and experiments.

The United States government is the greatest builder in the country. It owns buildings worth more than $300,000,000, and spends $20,000,000 a year on new ones.

The government carries no insurance on its property. It safeguards itself against loss by erecting buildings that won't burn. If it carried insurance the premiums would amount to $600,000 a year.

The geological survey has carried on elaborate tests of all sorts of building materials, and has determined which resist fire the most successfully. As a consequence of these tests, in recent years, the government has made its large buildings safe from fire by use of brick and other burned clay products, including hollow terra-cotta tile in floors, partitions and column coverings.

This building material is the same kind that is used in the largest and newest "sky-scraper" in Chicago and New York city.

The sanction of the United States government thus given to burned clay products in the construction of buildings has naturally brought this class of building material into more general and favorable use.

Of all the common building brick made in the United States over 10 per cent. are made in Chicago. Of all the big brick making industries in the world Chicago has the largest, many Chicago plants surpassing in capacity and output anything else in the country.

To add 50 per cent. to the output of the Chicago brick plants, with practically the same amount of labor, seems incredible, but this is just what the brick manufacturers are doing. In the past twenty years the brick making enterprise has been revolutionized step by step in its several branches. In only one branch, that of kiln building and burning, there was no improvement, because it was thought improvement was impossible. Here, however, a revolution has at last been made, which has been tried out thoroughly here in Chicago, and proved practical, and it is this improvement which is now being installed in all the brick plants of Chicago and which will at once add 50 per cent to the output of the Chicago plants, and will be able to take care of another 50 per cent increase when other branches of the brick making trade are brought up to the capacity of this new kiln setting machinery. For thousands of years brick have been set by hand. Chicago brick manufacturers recognized the absolute necessity of faster and better methods for setting brick, and were quick to adopt the new Penfield setting system. The new system is thorough but simple.

When the brick come from the brick-making machine they are piled on the cars, about 1,000 brick constituting a load. These loads are built on a standard plan, which provides a space between the brick. When the cars come from the drier they are brought into the kiln shed where the setting machine is in operation. The setting machine is made of steel and is provided with a number of heavy fingers of a proper width to allow them to pass freely into the openings left between the brick of the bottom rows. Each finger is provided with pressure plates automatically operated. The setting machine is suspended from an overhead electric crane traveling on elevated tracks, running the length of the kiln shed. The operator of the crane can pick up the setting machine and carry it to any part of the kiln shed. When the car of brick has been received from the drier the craneman lowers the setting machine to a level with the car of brick. He inserts the fingers accurately into the spaces left for them and starts to raise the load. As soon as the weight of the load of brick rests on the setting machine the grip plates are automatically closed on the bottom row of brick, with just enough pressure to keep them from falling. The bulk of the load is carried by the heavy steel fingers, as above the first two courses of brick the stack is set crossways of the fingers. Having raised the load to the height required, the craneman carries it to that part of the kiln where he wants it set and it is lowered accurately to the exact position required. When the stack is lowered into positon the weight of the load is naturally removed from the machine. This being the case, the pressure is automatically released by the grip plates which have held the bottom row of brick, and the machine is left free. The craneman backs out with his machine and returns to the dry cars for another load.

The old method of setting brick in the kiln was slow and destructive, as in tossing the brick from the drying trucks up into the kiln there was a great deal of spoilage. The Penfield setting system handles the brick in stacks of 1,000 each, touching only a few of the bricks on the bottom row, and none of them are damaged.

By the old hand set method the men worked in crews of three men each—one to toss the brick, one to set the brick and the third to bring in the drying trucks. These men could set 30,000 bricks a day, which made the average 10,000 per man. The new machine will set 1,000 brick each minute, and has been operating in Chicago at the rate of 5,000 brick in three minutes. This speed is equal to the work of from thirty to fifty men a day, and the machine requires only the cranemen and a helper to operate it. It is the big labor-saving feature which leads the Chicago brick manufacturers to expect to practically double their output, with very little extra labor, and save much in spoilage.

By decreasing the cost of making the brick and by increasing the output almost 50 per cent, it is thought Chicago will be given an adequate supply of brick and at a less price than most of the large cities of the country.

The average person knows little of the art of brickmaking. His ideas are of the old methods of years gone by, but he is not versed in the present Chicago process. The clay is dug by steam shovel and dumped into small cars which convey the clay to a granulating machine in which the fiber of the clay is destroyed and the clay thoroughly mixed. From the granulator the clay is transferred by a conveyor to a disintegrator where any stones are removed. Another conveyor takes the clay to the auger brick machine, where it is compressed into a rectangular column 2½ by 4 inches. This column is kept moving in a continuous stream and passes into an automatic cutting machine, which cuts the column of clay into brick of the regulation length. These brick are taken from the moving belt on which the cutter leaves them and are piled on the drying cars upon which they are dried. In piling the brick on these cars the stack is built on a uniform plan to provide spaces along the bottom rows for the admission of the fingers of the brick setting machine. When the bricks are dry the loaded cars are taken into the kiln shed, where the brick setting machine picks up the full dry car load and deposits it in the proper place in the kiln. After the kiln has been burned the brick setting machine is again brought into use and each stack of brick is again picked up and carried to the railway cars and deposited for shipment.

This newest revolution in the brick-making business is an idea from the west. The mechanical brick setter was conceived in Kansas, but so far has the Chicago setter deviated from the original that nothing is left but the principle. The western machine was much too slow for the busy Chicagoans, and where the original setter handled only a hundred brick at each lift the Chicago machines easily handle a thousand or more at a time. By the use of the machine the quality of the brick is improved, the cost is reduced, the burning time shortened and the spoilage practically eliminated. These are vital points to both consumer and manufacturer. To the consumer it means more for his money, to the manufacturer, increased profits.

Like many other important inventions in the clay working industry, the setting machine is not the product of a single mind. A leading brick manufacturer of Boston was the first to patent and develop a method of setting and handling brick. Then a Kansas brick manufacturer patented a radical improvement in the method and mechanism for his work, and placed a successful brick setting machine in his brick yard.

It was not, however, until these patents had been acquired by Mr. R. C. Penfield that the complete and full development was attained. Mr. Penfield is one of the country's leading experts and inventors in the line of clay working machinery and is an authority of note in the manufacture of clay products. He has gone thoroughly into the development, improvement and extension of this system of economical brick handling. Many new improvements have been made to it, and many new patents obtained. Mr. Penfield is an Ohioan. He was born at Willoughby, Ohio, and his father, the late J. W. Penfield, was one of the pioneer manufacturers of brick making machinery in this country. For over fifty years the Penfield family has made and operated machinery for making brick and other clay products.

To the enterprise of Chicago brick makers is due the forward position occupied by Chicago in the brick making trade today. To this same enterprise is due much of the progress of brick making in the United States. To grow naturally larger and larger is enterprise, but when to grow equal to the demand requires the abandonment of former methods, practices and machinery still good, becomes more than enterprise and borders on the heroic. Too much credit cannot be given to enterprise of this character. It is characteristic of Chicago and particularly characteristic of Chicago's brick manufacturers.

The number of brick plants in Chicago is at present 33. These are owned by the following firms: Illinois Brick Company, National Brick Company, Chicago Brick Company, Carey Brick Company, The Alanzo J. Curtis Brick Company, Calumet Brick Company, Bach Brick Company, G. J. Heimann & Co., Builders' Brick Company and Alexander Burke.

These companies are all installing the new Penfield setting system, by the use of which their output will be greatly increased.

The face brick interests are of particular importance and the various firms dealing in such material represent the best products of all brick plants throughout the middle west. The face brick dealers of Chicago have taken much interest in the coming convention and will be glad to meet at that time the manufacturers of brick to enable them to get into closer touch and no doubt this convention offers a good opportunity for those who wish to go into the Chicago market to make favorable arrangements.

Among the number are the S. S. Kimball Co., Jenkins & Reynolds Co., The Thomas Molding Co., Bonner & Marshall Co., and W. H. McCarthy, and the Hydraulic Pressed Brick Co., all located in the Chamber of Commerce building.

In fire brick also Chicago occupies a leading position. There are a number of refractory plants adjacent to Chicago with their main offices in this city and a large proportion of the fire brick sold in the middle west found their sales through Chicago offices. The Chicago Retort & Fire Brick Co., 115 Adams street, is the only one having its works and main office in Chicago. There are numerous dealers located in the city.

The sewer pipe interests are represented by many firms, prominent among them being the Wm. E. Dee Sewer Pipe Co., and the Chicago Sewer Pipe Co.

The terra cotta interests should not be overlooked. The Northwestern Terra Cotta Co.'s plant is within five miles from the convention hall and the American Terra Cotta Co.'s plant is only a short ride. Both have down town offices

The fireproofing industry is well represented. One of the main offices of the National Fire Proofing Co. is located at 115 Adams street. Other fireproofing companies and plants are within a short distance.

The manufacture of clay machinery and supplies should not be lost track of. In the Chamber of Commerce building is an office of the American Clay Machinery Co., 77 Jackson boulevard is the Chicago Brick Machinery office. The Chambers Bros. Co. have an office at 524 W. Jackson boulevard.

The Ohio Ceramic Engineering Co., the Orenstein-Arthur Koppel Co., L. E. Rodgers Engineering Co., Main Belting Co., Chisholm, Boyd & White Co., Richard Hoffman, owner of the Disener Clay Cleaner and many others maintain offices in the city.

## NEW TEXAS BRICK CONCERN.

The Citico Brick Co. is the name of a new corporation recently granted a charter at Chattanooga, Texas. Mr. Charles W. Howard is the president and principal stockholder. Other members of the firm are J. A. Henderson, A. Shalliday, John A. Chambliss and A. W. Chambliss. They have purchased the plant formerly owned by the Tennessee Brick Company, comprising twenty acres of land, and are adding several buildings to those already on the grounds. They will engage in the manufacture of brick, tile and other clay products, and expect to be in active operation by the first of the season.

The best sign of increasing demand for burned clay is the many inquiries from prospective builders of downdraft kilns all over the country.

# THE BRICKMAKER IN MEXICO

The brickmaker in the United States, weighed down under the pressure of high-priced labor, coal and other necessities,—with frozen clay to work with, at least three months of the year,—is inclined to look with envious eye at the seemingly easy brickmaking problems of his brother, in our neighboring country—Mexico—"but all is not gold that glitters," contrary to the general impression, the life of the brickmaker, there, is not one of unalloyed bliss.

While it is true that common labor, at 22 cents a day, sounds good, the fact is, that it is about all it is worth, and is sometimes dear at that price. The native worker, with his ignorance, shiftless ways and his habit of spending a goodly portion of his wages for "firewater," in the shape of muscal and pulque (native drinks, made from the juice of the century plant), is an uncertain quantity, and when the whistle blows, calling him to work, he is more than likely to be found stretched out in the sun or in the lock-up, sleeping the sleep of the drunken. Owing to this condition, twice as many men must be kept on the payroll as are required for each day's work.

The peon's needs are few. The rank and file live in small adobe huts, dirty, dark and guiltless of windows or ventilation, one door offering the only means of ingress and egress. His clothes, as a rule, are scant, ragged and dirty, consisting of a cheap cotton shirt and trousers with leather sandals strapped with hand-made thongs to his bare feet, the skin, or more properly hide, of his feet being of the color and consistency of alligator skin. Over his shoulder is thrown a zarapa (blanket) of gaudy hue, which in the chill of the morning and evening is wrapped around him, in true Indian fashion. His crowning glory is his hat, which marks his standing in the financial and social

Stone Foundation for Large House with Piles of Adobes Ready to Go into the Walls.

Bird's-eye View of Mexico City.

A Typical Mexican City Scene—Note Scarcity of Windows.

scale, and costs from $2.00 to $200.00, according to the amount of silver trimming thereon.

His living is his least concern, as he can live well, from his point of view, on the munificent sum of six to eight cents a day, his bill of fare consisting largely of tortillas (a sort of thin pancake, made from coarsely ground corn), used primarily as a spoon, and afterwards eaten, and frijoles (kidney beans) with an occasional treat of chili-con-carne and sweet potatoes, plentifully cooked in grease. No worry over the high cost of living here.

The wife and children help out the family exchequer by basket weaving, rope making, drawn work and selling fruits, candies, etc., on the street. Everything is done in the open air, from bathing the baby to making shoes. The washing is done at the nearest stream, and it is no uncommon sight to see washing of clothes, scrubbing of horses and wagons and a regiment of soldiers taking their bath, all in the same stream at the same time,—so that the rude huts are little used, except at night as a shelter for the large brood of children and dogs, the usual accompaniment of the poor.

An Unplastered House Without Windows.

Under these conditions it can readily be seen that the peon sees little necessity for laboring at a steady stretch, in the mad pursuit of needless wealth.

A brickmaker had an exceptionally good worker, Jesus Gonzales (a common name here); as a mark of appreciation, and to ease his conscience, the employer gave him a raise in wages, immediately the man began taking two holidays a week. When taken to task about it, he seemed surprised and said he did not need so much money, so why work the two extra days?

The bane of all employers of Mexican labor is the national cry of "Manana," meaning tomorrow. Mexicans thoroughly believe in the proverb "sufficient unto the day, is the evil thereof," and are quite willing, yea, determined to put off everything and anything, in the way of work, until Manana.

While some of these peons are faithful workers, in a dog-like way, they seem, with few exceptions, incapable of becoming heads of departments and foremen, so that the brickmaker must import experienced help from the States, for the responsible positions, paying an exorbitant salary in gold, while he must sell his product for Mexican silver, usually less than half the value of the gold standard. The new worker must be dealt with, patiently, while he learns the Spanish language, universally used in Mexico. After the novelty wears off he soon tires of the monotonous life, with no companions or society, and the constant diet of chili-con-carne, frijoles and rank coffee, cooked by a greasy Mexican, palls on his appetite. He soon contracts an attack of United-Statesitis, —a raise in salary effects a temporary cure,—but a letter from his old "boss," offering him his former place at an increase in salary or a letter from his sweetheart, brings

Pile of Adobes with Adobe Walls.

Tile Covered House at Vera Cruz.

on an acute attack and he soon hies him to God's own country, "the land of the free and the home of the brave." Then a new recruit must be secured and put through the same expensive course of training.

With coal at $18.50 per ton, wood $13.50 per cord and other necessities proportionally high, brick should bring $40.00 per M., Mexican money, to insure a profit, while the usual price is $20.00 per M.

One of the difficulties in the making of brick in Mexico is the tendency to check, during the drying process,—this sometimes occurs on a windy day, before the brick are cut off on the belt. After cutting, the brick are placed in sheds, and covered with burlap to prevent checking, even then it is difficult to get a brick without a check. Owing to this fault in the clay, which seems to be general throughout the country, a dryer cannot be used to good advantage.

A Continuous Kiln.

Mexico is slow to take to the hollow block proposition, but a tabique (block), 3½ x 6 x 12, is being manufactured and used to some extent.

Brick machinery is brought in from the States,—and woe to Mr. Brickmaker if he neglects to keep sufficient hardware ordered, from the States,—for if he is forced to buy here, he will be obliged to pay five or six times the price paid in the United States.

The same holds good in regard to clothing and other necessities. If he wishes to buy a pair of shoes, such as he would pay $3.00 for at home, he will have to put up $12.00 for them here. If he is fastidious and desires to buy a cake of Colgates' soap, he will probably decide good old Ivory,. at 25 cents a cake, is good enough for him, as Colgates, is 85 cents. If the baby needs a bottle of Castoria, he will pay $1.25 for "the stuff that babies cry for."

While the Mexicans are notoriously dirty and filthy, as regards their person and habitation, we Americans might well "sit up and take notice" of their civic cleanliness. All of the cities have many miles of the best of all paving—brick—while many streets retain the primitive paving, of cobble stones. The paving and street work is largely done by convict labor, another feature America might well copy. But whether paved or not, the streets

Interior of Continuous Kiln.

are kept clean. Each householder must see that the street in front of his house, to the center, is sprinkled and swept, by hand, each morning and evening. This is usually done by the man-servant of the well-to-do, otherwise by one of the family, a small broom, with a short handle being used.

There are no alleys, the back yard being enclosed with a solid wall, so that it is a common sight to see the household scavengers—pigs and chickens—taken in at the front door during the moving process, followed by an array of human express vans (cargadores or carriers) carrying bookcases, wardrobes, pianos, etc., on their backs.

Frame buildings are almost unknown here. The houses of the poorer classes being built of adobe (clay cut out in large chunks and dried in the sun), those of the better class in the cities being built of brick. The walls are thick, to keep out the heat, the rooms being built around a central court, called the patio, which among the wealthy is made beautiful with fountains, flowers and ornamental statuary. The houses face directly on the street, with no front yard whatever. The windows are furnished with heavy iron bars, which are painted in bright tints, to correspond with the finish of the house, which is frequently of an ornate order and such delicate tints as sky-blue, pink and yellow seem not out of place beneath the turquoise sky here, in America's Italy.

With substantial brick buildings to be built for the government, solid walls around farms and orchards, and cities adding many paved streets each year, the brickmaker has a steady market for his wares, but from all accounts he earns all he gets.

The redeeming feature is the climate, which in many places is ideal, and in a trip of a few miles one can have any climate he wishes from tropic heat, in the lowlands, to Arctic cold on the snow-topped mountains. The scenery is beautiful, and if one is fortunate enough to have a plant near Mexico City, where there is a large colony of sociable Americans, life may be quite endurable to the brickmaker, far from his native land of the Stars and Stripes.

## PROSPECTS IN KANSAS.

H. B. Jalkeson, otherwise known as the "brick man," manager of the Lumberman's Supply Co., Wichita, Kan. (one of the largest jobbers in brick in that section of the state, handling from 40 to 50 million brick annually through their two offices at Wichita and Topeka), informs us that the situation in that section at the present time is considerably better than it was six weeks ago and that business in sight for the next few months will average up with former years, and business for the coming spring promises to equal that of 1910.

He also reports that during the past few months the Kansas plants from which they obtained their supply of brick have put prices on such a basis that there has been but little money in the business for either the manufacturer or the jobber, but it is hoped that with the curtailment of output the business may be put on a paying basis, such as was enjoyed during the early part of 1910.

## AN INTERESTING COLORADO PLANT.

One of the new Colorado clay propositions which gives promise of great success is that of the Longmont Brick & Tile Co., of which Wm. Stewardson is manager and C. M. Stewardson superintendent. This plant operates three down-draft kilns and manufactures a high grade of wire-cut building brick, hollow block and alkali-proof drain tile. The company is fortunate in possessing a very valuable deposit of hard clay shale, said to be the best material in the west for the manufacture of drain tile and hollow block.

The plant includes a Wallace soft-mud machine, a Freese pugmill and an Eagle dry-pan. Steam is used for drying and a 100 h.p. engine and boiler provide power for the machinery. Lignite coal is used for burning the kilns.

The Longmont Brick & Tile Co. has shown much enterprise in the organization of its company and the erection of its plant, and especially in its progressive selling methods.

## A MOST SUCCESSFUL YEAR.

The Wabash Brick Co., located at Terre Haute, Ind., considers that 1910 has been the most successful year in its history, and the officers of the company are enthusiastic over the outlook. They declare that the tendency in their section of the country is towards increased use of brick for constructive purposes, especially since there has been disseminated more knowledge concerning the architectural possibilities of brick and the fact that buildings may be made attractive and pleasing to the eye through the use of brick without considering the cost of other forms of construction. They feel that there is evidence of a desire now of the public to get away from old ideas in building, and that as a result the brickmakers will soon be riding the highway of popularity. They declare that the campaign at present is one of education and that it is along this line that particularly successful work can be done.

The Wabash Brick Co. has its yards in West Terre Haute and is the largest manufacturer of common building brick in that territory. It makes a bright red sand-mold brick from shale and clay, semi-vitrifying same in burning. The product is of great hardness and yet capable of being laid rapidly without fear of slipping. Wherever introduced this company's brick has given excellent satisfaction and has become very popular in that territory. Orders have already been booked for all the brick that can be made this year.

Logan G. Hughes is president of this company and H. M. Spang secretary and treasurer.

## A SUCCESSFUL SOFT-MUD PLANT.

At Macomb, Ill., are large deposits of serviceable clay; and one of the successful manufacturers in that section is P. H. Tiernan, who, in addition to being a brickmaker, is also a mason contractor. He operates a soft-mud plant, having a season's capacity of over 2,000,000 brick. Drying is done in open sheds, which have a capacity of 150,000 brick. Fifteen thousand brick are molded every morning during the season; and the same gang of men which makes the brick in the morning does the kiln setting and fills the pit in the afternoon.

The plant is equipped with a Horton soft-mud machine and a Raymond disintegrator. Four down-draft kilns are used for burning and the power plant develops 45 h.p. Mr. Tiernan expects to enlarge the capacity of his plant next season.

## FACTORY AT TENNYSON, IND.

N. E. Palmer has organized a stock company to build a tile factory at Tennyson, Ind. Ex-Senator James Hemenway is one of the large stockholders, as is Dr. Knapp of Evansville. This company will have $10,000 capital stock.

# NINETEEN HUNDRED ELEVEN

## A Few New Year's Observations Written by the Well-Known Apostle of Fire Proof Building Construction

By F. W. Fitzpatrick.

Well, if it deals as gently with most of us as did old 1910 surely there will be few of us who'll have real cause to complain, though it is the very nature of man to growl—and we certainly give pretty good sway to that nature.

It would be nice to pronounce some sort of valedictory anent the parting year but perhaps a word or two of prophecy—based upon Hope as are all matters prophetic—relative to the New Year may serve instead.

We start in with a little over one hundred million people; we have forty cities with over one hundred thousand inhabitants; we have nearly a million dollars a day going into our saving banks, a great fund seeking investment and at the same time investors heartily sick and tired of speculative investments in stock-jobbing, little better than gambling affairs, and looking intently into the building field as a possible and safe one for their money. The people who build are getting out of the notion that "shoddy" means economy and the result is that we are building infinitely better than we did even five years ago and will do still better in 1911. The great J. J. Hill to the contrary notwithstanding, I look for a bumper-crop of construction in 1911 and fine buildings, noble mounmental structures, great commercial edifices and dainty, comfortable (fireproof) homes. We have done a bit over a billion dollars worth of building in 1910 and I look for a billion and a half in 1911.

Three times as many really fire-resisting buildings were put up in 1910 as in any other one year, buildings, I mean, in which fewer silly mistakes were made and any one of which vitiates much of the good work in fireproofing, the leaving of windows unprotected for instance, or too large units of space, or elevator shafts left open. Those buildings, in other words, were so constructed that in case of a furious fire about them—always a present danger—they could be damaged not more than 12 per cent of their cost value and would afford protection to at least 90 per cent of their contents. Most of the "fireproof" building, of other years, however well the structural part might be done, so sinned in combustible decorative work and lack of fireproof design in arrangement, that they could be and were damaged by fire anywhere from 30 to 85 per cent of their cost value and permitted all or nearly all of their contents to be destroyed. In 1911 there is a strong probability of there being at least four times as many fireproof buildings built as there were in 1910. The standard of excellence will be raised so that they could be damaged only 5 per cent of their cost while affording protection to all of their occupants and contents.

The two great elements of costly damage in a building are the marble or granite exteriors and the wooden and combustible interior trimming and decoration. The latter is being eliminated and at great jumps, doors and window frames can now be produced in metal as cheaply as in wood and floor surfaces can be and are made of plastic materials, cements, etc., vastly superior to wood in wear, comfort and fire-resistance and that cost no more. People still have the notion that granite, marble and stone are the proper caper in monumental buildings, surfaces that go all to pieces in a hot fire, but the business men tend more and more to wall surfaces of undamageable brick and terra cotta. You'll see brick and terra cotta preponderating to a still greater extent in 1911.

And, speaking of cement, in 1910 there was noticeable a distinct sobering-down of that enthusiasm and in 1911 there'll be still more, so that it will no longer be a craze and a mania. It cannot be entrusted in unskilled hands, and has been found to be the most freakish and hazardous material ever handled and it should only be used by an expert, and supervised by another who never slept and even then cement construction should only be done after much prayer and fasting.

Many cities in 1910 awakened to the fire danger. They have seen the population of the country increase 73 per cent in thirty years and their fire losses increase 134 per cent in the same period; they noted the terrific damage fire was doing them and that it cost them just about as much more for a fire department to keep that damage to what it was. And four cities during last year passed ordinances prohibiting everything but really fireproof construction within their fire-limits. I confidently expect that many cities will adopt similar stringent regulations in 1911 and never again, I hope, will we be such fools, will we give Europeans the opportunity to jeer at our lack of intelligence, as we did in 1909, when we permitted full 61 per cent of all the construction of the year to be frame, tinder-box, fire-trap buildings! Signs are mighty hopeful. In advising a big city recently I dared suggest barring wood in construction anywhere, within or without the fire limits. A year ago such a suggestion would have been scorned and probably I would have been thrown out. In this instance they received the notion, seriously discussed it and only decided not to,—the people were not quite ready for so drastic a step,—by a very scant majority vote. By the end of 1911 we will be treated to the pleasant treat of perhaps a dozen cities prohibiting absolutely, all inflammable structural material everywhere and anywhere within their corporate limits.

Further, but this is almost sub rosa, the states are sitting-up and taking notice. Governor after governor has promised me, and with enthusiasm, to take up with their next legislatures the proposed matter of a state building law, a minimum excellence of construction that will be exacted everywhere in the state, on the farm, in the village and in the city. Each city or town can then exact as much better construction as it desires, but nowhere will there be tolerated anything below the state's requirements that will form the basis, the nucleus around which the municipalities may weave their more elaborate building codes. In 1911 we'll also note that the cities will take more kindly than they have done heretofore to the idea of a uniform code. Heretofore each city has striven to get up something new, individual and extraordinary, the work of a "commission" of its own "experts," most of whom never saw a code before. Great jumbles, wonderful laws and much scrapping have resulted. We are getting to a point where the cities appreciate that experience counts for much, and that uniformity is desirable and that a code that works well in C and in B is more apt to work well at home, than something "absolutely new and startling."

And not the least important item of that code will be:

"Article 10. And further, all new buildings shall be conspicuously labeled, at or near the entrance, just as to what classes of construction they are—whether "fireproof," "slow-burning," or "ordinary"—and all old ones of a public or semi-public nature—halls, theatres, stores, hotels, apartments, etc.—shall be similarly labeled. In connection with these old structures there shall be an additional classification "dangerous." These labels shall be different in colors, so that each class is easily recognizable, and shall be affixed by the building department as soon as it is possible to make the necessary inspection. All appeals will be heard and settled by the advisory board. It shall be a punishable offense, to in any way hide or mar these signs or to advertise, name or distinguish the building by any superior classification than that which it has been labeled by the department."

Not a particularly ominous nor offensive looking item but one fraught with beneficent possibilities though innocent looking. How many tenants will a man secure? How good a sale can he make of his old fire-trap with its official "Dangerous" sign placarded upon it? Nothing will stir laggard owners up more than this one little feature, nothing can possibly do more to secure quickly the replacing of old and inferior buildings with new and fire-resisting ones.

And our homes, there where we spend so much time—or should—and where our loved ones and our cherished possessions are supposed to repose blissfully free from care and danger but where, in reality, they have been so carelessly exposed to utter extinction, terrible destruction, will be better built in 1911. In 1910 there were six times as many fireproof houses built as in the three preceding years and it looks as if we would at least quadruple our 1910 record in 1911. The layman is beginning to know what a fireproof house is, he is getting over the notion that he secured immunity from fire the moment he had paid his insurance premium, and he's getting it into his head that by a little, a very little, additional initial increase in cost of building, he effects his own safety and his family's, an ultimate economy, and relieves himself of the insurance and several other items of expense.

He is being made to see the advantages of burnt clay in house construction, the infinite and artistic variations to which it is susceptible, its wonderful lasting qualities all secured at a ridiculously small increase of cost over the usual flimsy painted frame box he has been accustomed to call "home."

The clay products manufacturers have brought about this change, this enlarged horizon, this revelation to the layman, and have done it with printer's ink.

For years these manufacturers have seemed quite content with what they were doing. They sold their output with no thought of the future, they complacently sold their goods when people came for them. The new way, the modern way, is to take the goods to the people, to create a still greater demand for those goods, to make a market for them and to educate the people in the advantages and merits of their uses. I brought this matter as forcefully as I could to the attention of the brick manufacturers at their convention of 1908 and it seemed to bear fruit They did a little publicity advertising in 1909 and it produced startling results. They did more in 1910 and with so much benefit that they plan a big campaign in 1911. By 1912 the most ordinary layman will know and appreciate the advantages of a fireproof house and will demand it for his abode.

So here's to 1911! With brotherly feelings to all, in Unity and Peace, all hands helping in the one direction, architects, builders, manufacturers and consumers, publishers and all, let's strive to make this year a banner one, way ahead of all preceding years, the one to be known for long years afterwards as that of the Bumper Building Crop.

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Mr. Archie Sproul is making arrangements for the establishment of a large brick manufacturing plant at Hamilton, Can.

## ILLINOIS BRICK CO.

During the year just closed the Illinois Brick Company has made permanent improvements in its plants to the amount of $95,200. This puts the company on a better basis than ever to make brick economically and quickly and to fill all orders satisfactorily. The Illinois Brick Company will continue to be, as in the past, the leading manufacturer of brick in Chicago.

Another change that took place at the annual meeting and that augurs well for the company's future was the elevation to the presidency of Mr. C. D. B. Howell, the former treasurer. Mr. Howell has had an important part in the management of the company thus far and has done much to bring it to its present high position in the brick industry. He now takes the leadership of the enterprise as president of the company, and it is freely predicted that the company's career of prosperity has only just begun. Mr. Howell's ability, his intimate knowledge of the needs of the business, his devotion to the best interests of the Illinois Brick Company, will make that company more successful in the future than in the past.

Associated with Mr. Howell as officers and directors are the following able business men, the official roster being as follows: President, C. D. B. Howell, vice-president and auditor, V. B. Ver Nooy; treasurer, J. H. Gray; secretary, William Schlake; directors, S. W. Lamson, E. C. Potter, J. H. Gray.

The company has assets of over $4,000,000. Its statement is as follows:

**Assets.**

| | Dec. 31, 1906. | Dec. 31, 1905. |
|---|---|---|
| Plants | $3,619,716 | $3,635,516 |
| Accts, and bills receivable | 393,020 | 370,778 |
| Brick & supplies | 291,945 | 377,814 |
| Cash | 93,805 | 46,788 |
| Totals | $4,398,487 | $4,430,890 |

**Liabilities.**

| | | |
|---|---|---|
| Capital stock | $4,000,000 | $4,000,000 |
| Accounts payable | 127,642 | 114,039 |
| Dividends, due Jan. 15th | 40,000 | 60,000 |
| Surplus | 230,845 | 256,857 |
| Totals | $4,398,487 | $4,430,896 |

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## BUY BRICK PLANT AT WEST APOLLO.

Johnstown capitalists have purchased the Apollo Silica Brick Co.'s plant at West Apollo, Pa., and have already taken over the works. The purchasers are Attorney Bruce H. Campbell, John H. Waters, W. H. Hill, and Joseph Waters, the price paid for the property is understood to have been $30,000.

The purchasers announce that they will greatly increase the capacity of the plant, and improvements will be made to double the output. The plant consists of five kilns with the daily capacity of 15,000 brick.

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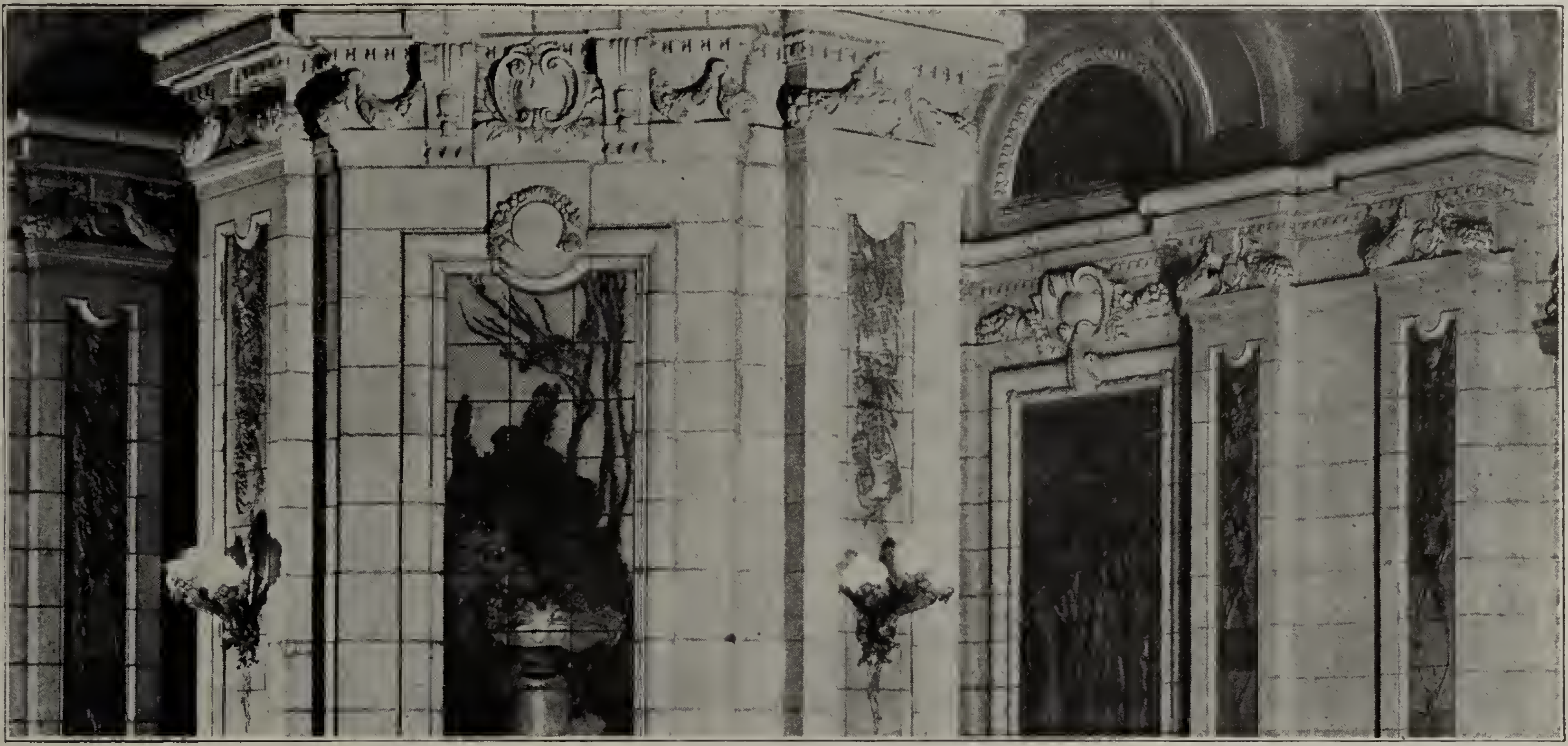
## BRICK SCARCE IN OREGON.

Manager H. H. White, of the Byllesby company at Portland, Ore., informs us they are having great trouble getting first class brick for their big building operations contemplated at Eugene and Springfield. He just purchased 295,000 which will cost $20 per thousand in Eugene. There are very few brick for sale at any price and those who have them do not seem to care whether they sell them or not.

# WALL AND FLOOR TILE

By Charles F. Binns.

Like many of the products of ceramic art the tile had its origin in the Orient, at least as far as the covering of the wall is concerned. Persia and Arabia made large use of this material and the decorations were often very elaborate. Floor tile was made in England even in the thirteenth century, but in those early days there was no connection between these uses of similar material. Later on, in the fuller development of English ceramic products, the establishments of Maw, Minton and Craven Dunnill manufactured tile for both wall and floor in great abundance and with a high degree of elaboration.



Interior Panel Decoration—Matt Glaze Tile.

The early tile were made from plastic clay, either expressed from a machine as is customary with brick or pressed into molds either of wood or plaster. Difficulty was encountered in keeping the tile straight. The thin slabs of clay had a perverse tendency to warp and twist both in drying and in burning. and to obviate this a large proportion of grog or pulverized burned clay was added to the mass. The effect of this was to so open the pores of the material that the moisture could easily escape and the warping was in a large measure avoided.

Making Plastic Tile.

Setting a Kiln.

Then came the dry-press process. Instead of a plastic mass being used the clay was powdered and slightly damped so that it would cohere when placed under heavy pressure. The moisture being evenly distributed and the clay being kept in a porous condition the strains of drying were avoided. The dry press method is now adopted almost universally when commercial conditions have to be met. The tile are made with great rapidity, the surface is true and the angles square. On the other hand the tile exhibit a mechanical finish which, to some, is hard and unsatisfactory. For wall tile the body clay is very similar to that used for white earthenware. Different clays with ground feldspar and ground flint are mixed together in accordance with an established recipe and are thoroughly mixed in water. The fluid is strained to free it from accidental impurities and the excess of water is pressed out. The clay is then dried, pulverized, moistened and fed to the presses.

After the first burning the tile are coated with a transparent glaze which preserves the clear white of the clay, or with a glaze colored by the addition of metallic oxides.

In the case of floor tile no glazing is, as a rule, attempted but the body clay is so composed as to be both colored and impervious. That is, the coloring oxides are added to the clay itself and the proportion of the clay mix is adjusted so that upon burning, the tile will become perfectly dense.

Glazing and Assorting Tile.

While some of the larger manufacturers produce both wall and floor tile, in a number of cases only one class of product is attempted. The methods of mixing and of burning are so different that the same machinery and kilns cannot well be used for both. Furthermore a large output of wall tile, whether with white or colored glaze can be secured with a single clay mix for the body and capacious reservoirs and mixers can be used to advantage. The maker of floor tile, on the other hand, must be prepared to use a large number of different mixtures, no one of which is required in large bulk.

A few years ago architects and builders were seized with a passion for accuracy and uniformity. Brick must be sorted to a mechanical exactness of shade, roofing tile must exhibit the single color of painted tin, each tile matching its fellow, and wall tile must be so true and level that even oblique light would show no undulation. A revolt was sure to come and architects began to search the cull piles for odd and freakish effects while tile were cut from plastic clay after the manner of gingerbread horses and pastry flowers.

It is true that perfect accuracy is impossible in clay wares, but there is no need for the affectation of crudity. The operation of the fire, left to itself, will produce a natural, pleasing variation and this should be the ideal for all structural wares. The tile manufacturer has enough difficulties to encounter in bringing his wares from the kiln in substantial and permanent form without having thrust upon him an artificial and arbitrary standard which, after all, in no way relates to the essential strength and beauty of his product.

As a proper finish to a surface or floor, tile has no equal. It is at once structural, fireproof, artistic, permanent and sanitary. This is being recognized in every direction, for tile is no longer reserved for the bath-room and kitchen.

Several notable advances have been made in the past few years. The tile framing of the fire place, which was derived from the Dutch, has grown into an ingle nook, built of glazed tile and a hearth of vitreous tesserae. Glazed tile are now made in every variety of color, and it is no longer necessary to use only white. Nor is the glaze always brilliant. The demands of modern design have given rise to the matt or texture glaze, rich or sober in tone as the occasion may require. This is most in evidence in buildings of a public or semi-public character.

Those who are unacquainted with the details of manufacture can hardly grasp the significance of the modern advances. In the olden days the clay, almost unprepared, was pressed into a mold. The tile were burned with but little more attention than was bestowed upon brick. As to size, if the pieces measured within a quarter of an inch of each other it was good enough. Now, the methods of pottery manufacture are adopted. Steel dies shape the tile to a marvelous exactness, and but for the stress of the fire there would be no perceptible variation. But it is this very fact—the play of the furnace—which imparts to clay wares their unique beauty and to this attention is at last being paid. To speak of the fire is, however, to put the last first. Before the pieces are ready for the burning the resources of the chemist, the ingenuity of the mechanician and the skill of the artist must be called into play. Clay is clay to be sure, but no two clays are alike and the composition of the body mass must not vary or the successive mixings will not produce wares of the same size and color. Coloring matter added to a clay will affect both the size of the finished piece and its resistance to fire, and all these details must be accurately gauged and provided for.

When all these things are considered in relation to the production of tile in large quantities it is sometimes a matter of wonder that clay wares such as these can be put upon the market at any price.

The secret lies in perfect organization and in highly specialized skill.

There remains one more quality which tile posseses in common with all articles made from clay, it is the personality, almost humanity, which belongs to friable wares as to no other manufactured product. This arises in part from the clay itself which in its plastic nature admits of the intimate touch of the artist and in part from the fire which performs a function so individual and yet so permanent that a piece of burned clay, be it tile or teapot, is unique and in a class by itself.

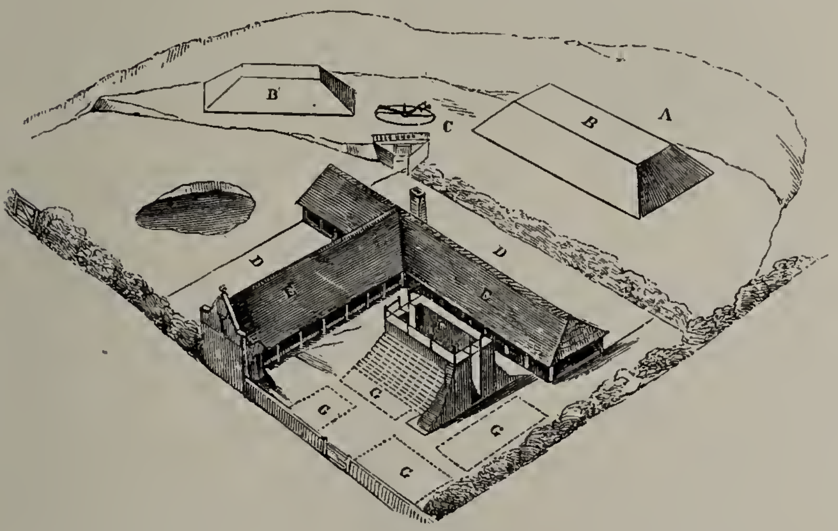
Mantel with Hand Painted Panel.

# EVOLUTION OF THE MODERN BRICK

## An Essay on the Genesis of Bricks from Their Earliest to Their Latest Development—Part VIII—The Modern Brick

By J. B. Lindon, Ceramic Engineer, Chicago, Ill.

In our previous chapters we have traced the long evolution of brick. We have watched primeval man, in the first dawn of artistic sense, engrave his rough cubes of clay with representations of the mammoth and cave-bear, drying them afterwards in the sunlight or the family hearth. And many a buried city of past empires has told us the story of the brick and brick-makers of its day. Our enquiring steps have brought us down to the varied types and immense uses of the brick in modern Europe. Let us now pass across the Atlantic with the Pilgrim Fathers, and note the rapid growth of brick-making in this country.



Old Engraving Showing Lay-out of Small Brick Plant.

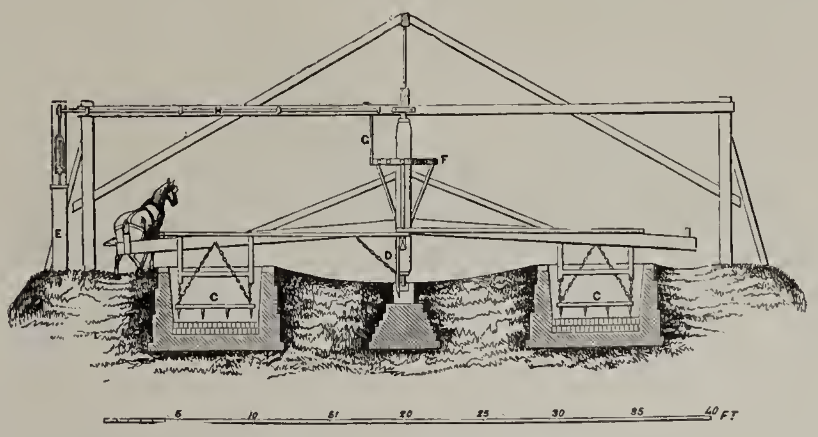
The abundant supplies of wood found on the Atlantic seaboard by the early immigrants naturally led to its sole use, at first, for building. But deforestation and the obvious drawbacks associated with wooden structures, especially in severe climates, have steadily driven this vogue further and further westward. Today the westerner, accustomed to the frame-buildings of the Pacific littoral, when he enters the cities of the East, expresses his first astonishment, not at the density of the crowds, nor the force of their ambitions written across the sky in overhead railways and "scrapers," but in the number of brick houses.

This desire of the colonies in the East to reproduce the solidity and comfort of the brick homes of England and Holland was early displayed. As far back in 1612 a brickyard was started in Virginia, and thirty-five years later New England was making a serviceable kiln-burnt brick for the homes of her successful traders. Next, Philadelphia followed with brick-making, in 1685, and her growing sister cities, urged by climatic conditions and ever-recurring fires, gradually supplanted their old wooden shanties with homes of brick.

It was not, however, until the last century that the processes for making brick by hand were superseded by the gradual introduction of machinery. The earliest attempt in this direction, destined to widen so vastly the scope of our industry, was apparently in 1835, when Nathaniel Adams, of Cornwall, New York, devised a machine for turning out brick. The power was at first manual, but this was soon improved by the substitution of horse-power, and a tempering wheel for working the clay was shortly afterwards added to this progressive plant. From this modest beginning, the improvements in methods have been rapid and continuous. There are now more than twelve thousand manufacturers of brick in the United States, two-thirds of whom use powerful and complicated machinery. Some of these concerns have yards in which ten or more machines are working, each of which can daily turn out 100,000 bricks. This is equivalent to a million brick per day for one yard, or say a quarter of a billion brick annually.

But, nevertheless, the hand method of working the clay into bricks is still used by about 4,000 small yards in the United States. By it, one or two men can mould and kiln about 50,000 rough brick in a season. The clay is usually dug in the autumn, and then allowed to disintegrate through the action of frost. When thus weathered it is put into a horse power pug-mill and the clay, when ground up, is moulded in a box shaped to the size of the required brick, and open on two sides. The surplus clay is planed off, and the cube of wet clay set to dry before carrying to the kiln.

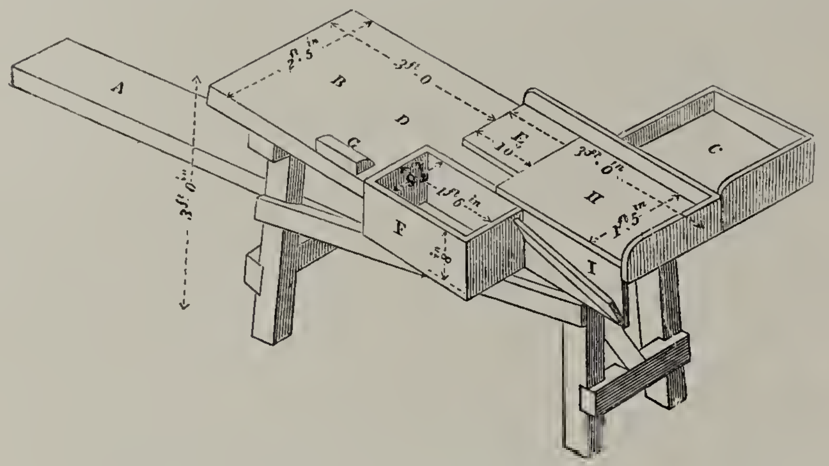
It would be presumptuous on the part of the writer to attempt to tell the readers of "Brick" about the present-day making of the wares their yards turn out. But, "con permiso de Vd," this series of articles upon our industry might be incomplete without a brief review of the names of modern brick, and the general processes of their manufacture. So rapid has been the increase in the demand and supply for brick to suit all purposes that there are now being made in the United States more than a hundred different varieties of brick, and an architect may, if his client is amenable and has an open purse, let his imagination run as wild in decorative schemes as Dante's description of the city of Din. The science of brick-making will set no limitations to the size, shape, hardness or color of any brick he may order.



Old Method of Clay Tempering.

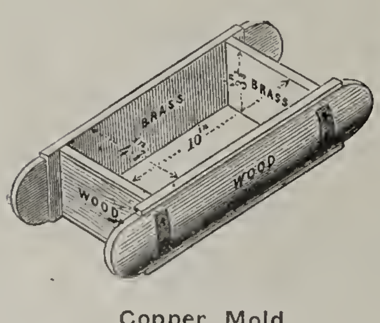
Nor does the ordinary building brick exhaust the profit to the owner of a valuable clay deposit. His raw material is also used in the manufacture of vitrified and paving brick; terra-cotta work; fire-proofing and imitation lumber; roofing, floor, and glazed tile; firebrick, retorts, crucibles, muffles, and refractory goods; all grades of pottery, stoves, sewer-pipe, door-knobs, electrical insulators, turbine wheels, closets, bath-tubs, wash-tubs, filters, mineral paint, food-adulterants, Portland cement, paper-fillers, ultramarine, modeling, umbrella handles, soap, toys, and an entire encyclopedia of other astounding things. The nature of the clay bed alone limits the ends to which its usefulness may be put.

Happily the various kinds of clay are widely distributed. The cretaceous clays of New Jersey are much used in the manufacture of refractory goods and white-ware, while the carboniferous clays of Pennsylvania and Ohio are extensively employed for making firebrick. Kaolin is quarried at several points in North Carolina, Georgia, Maryland, and Wisconsin, and much white ball-clay is found in Florida. Clays suitable for brick, terra-cotta and sewer-pipe occur at many points all over the United States. In the Central States, clays, excellent for the manufacture of vitrified paving-brick, are actively worked, while the commoner clays are utilized in almost every district.

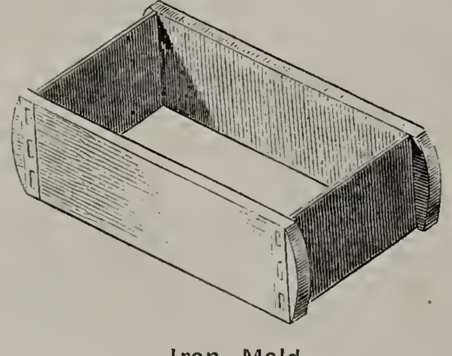


Hand Molding Table.

But clays resembling each other in age, color, and appearance vary surprisingly in their composition, and a correct knowledge of their latent qualities is vital. In the majority of cases the chief chemical constituents are silica and alumina. But, in addition to these items, variable quantities of iron oxide, lime, magnesia, alkalies, water and rarer substances are often present. The proportions of these ingredients affect the physical properties of the clay, changing its color when burned, its uses by the amount of plasticity in moulding, its shrinkage under the action of air and fire, and its refractoriness when subjected to great heat. The lime, magnesia, iron-oxides, and alkalies exert a fluxing tendency in burning, and the greater their quantity the lower the fusing point of the clay. The silica decreases the air and fire shrinkage of a clay, while the alumina and water have the reverse effect. Unlike the melting of most metals or the freezing of ice which transform their normal states nearly instantaneously, clay does not fuse suddenly, but softens gradually under the influence of heat. In very fusible clays this sintering may begin at 1500° or 1700° F., while in very refractory kinds it does not take place until a temperature of over 3000° is reached. The red color of a burned clay is caused by the presence of a small percentage of oxide of iron, generally the protoxide. When more than ten per cent of iron oxide is present the clay burns to a blue and almost a black color. Many clays, however, contain much lime and little iron, and these will burn nearly white. They require less heat than other clays to produce hard brick, as the lime acts as a flux on the silica.



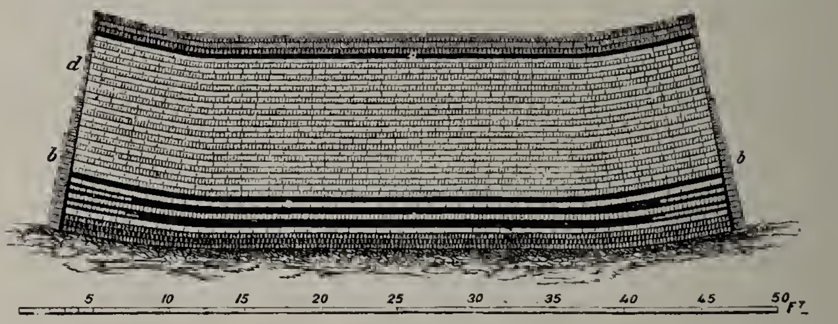
Copper Mold.



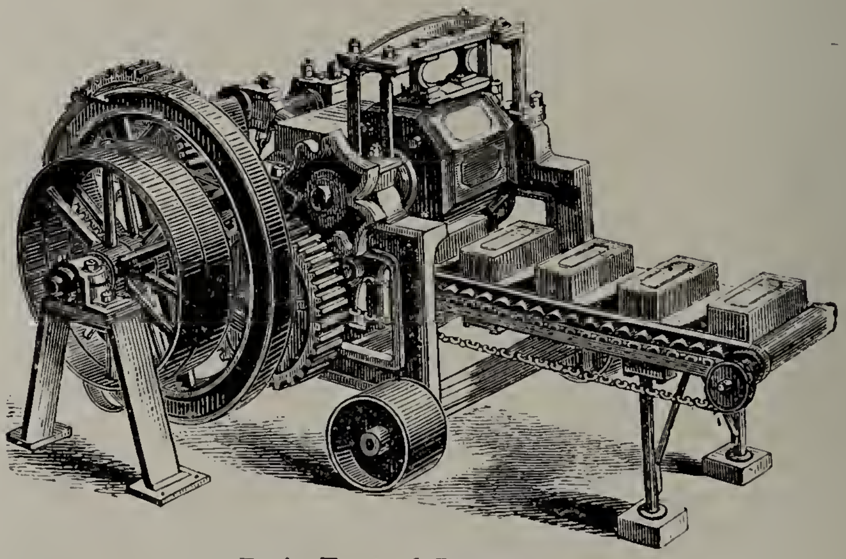
Iron Mold.

From the diversity in character of the raw materials the methods pursued in brick-making necessarily vary in different localities, and even in the same yards, where distinct forms are produced. After the clay has been cut from the bank or tunnel, it must be tempered before it can be moulded into brick. Reduction to a plastic state may be effected by wet or dry grinding, screening, pugging, washing, or by the lengthy process of weathering.

Apart from the smaller yards using hand-labor, a large number of the manufacturers in the United States are compelled, by the nature of their materials, to use the soft-mud process. Clays of a short, sandy nature, or those with a disposition to excessive lamination, are readily treated by this system, and beautiful sand-faced brick result. The clay is first dealt with in a separator, then passed through the pug-mill, and, when mixed with water to the right consistency, it is pressed in wooden moulds, which are sanded inside, to prevent adhesion of the clay. They are then placed on pallets and carried to the dryer and afterwards to the kiln, or in some instances a "clamp" is made of the raw brick. A fine article may be made in this way, thoroughly homogeneous and well-surfaced. Probably eighty per cent of all the brick made in the United States is in the form of these "commons" or semi-rough brick for wall work and fillings. Their usual dimensions are 8¼x4x2¼, but when pressed this size is reduced to 8⅜x4x2⅜. When burnt they are generally red in color, rough in face and texture, and will absorb about ten per cent of water. They are classed as arch, red or salmon, according to whether they are taken from the centre, the inner, or the outer portions of the kiln. The first are inclined to be hard or brittle and the last to be too soft.



A Brick Clamp.



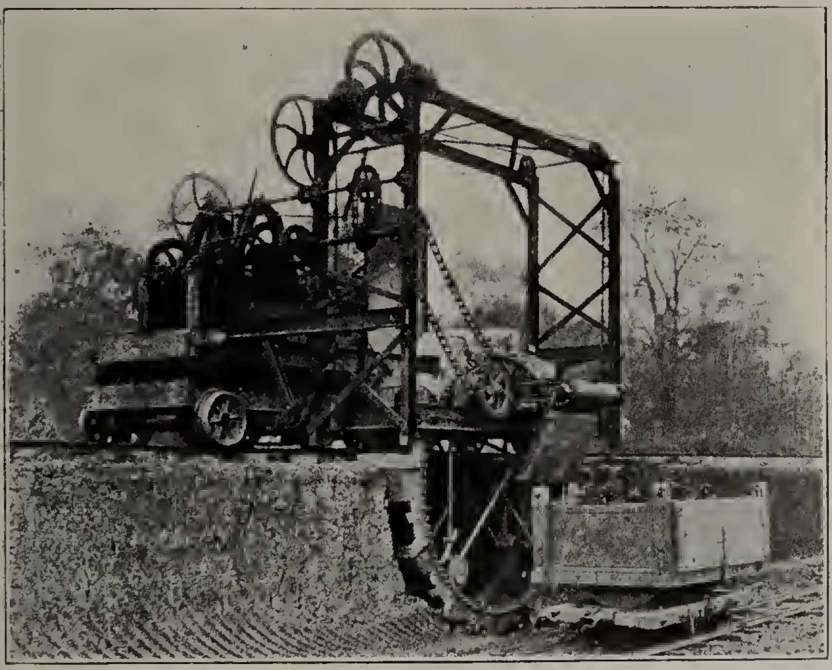
Early Type of Repress.

Next in magnitude of yearly output come "Facers," or front-brick, generally known as pressed or repressed. Their essentials are a smooth surface, sharp edges, and an even color. As their name implies, they are used for the exposed portions of buildings where good effect is particularly desired. Originally they were always moulded by hand and then pressed, but after machine moulding was adopted, the term "repressing" naturally came into vogue. At present a very good front brick can be made in one operation, but repressing is still practiced after the brick has been moulded by hand or machine. The clay should be selected carefully, thoroughly weathered or treated, and, in most cases, two or more clays may be advantageously mixed together.

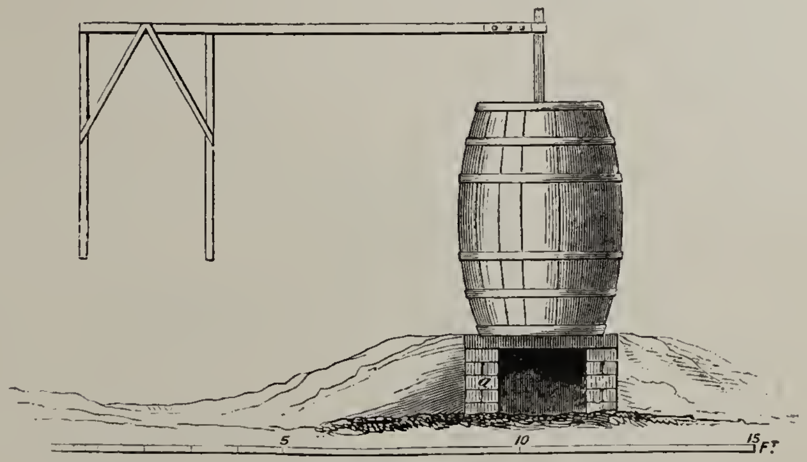
Ornamental and special forms of brick are also made in yearly increasing numbers. They are used for mouldings, or for the voussoirs of arches, and require better clay and careful manipulation. Beautiful effects are often achieved by different tinted bricks laid in diversified patterns, and the old Elizabethian art of carved brick is happily gaining ground in some places.

Old Style Clay Digging.

Enormous quantities of fire-brick are annually made for use where intense heat has to be withstood, as in fireplaces, furnaces, retorts, and chimney linings. For their manufacture, plastic and flint clays, of as pure a character as possible, are mixed, the former giving toughness, and the latter refractory qualities. The raw material is generally subjected to prolonged weathering. In the case of the famous Stourbridge fire-brick of England the clay is weathered for one or two years on "spoil-heaps," spread over as large an area as practicable, until thoroughly disintegrated. The clay is very heavy, weighing six tons to every seven cu. yards, and some of the spoil heaps contain as much as 10,000 tons. The materials, in the proportion taught by experience, are then treated by powerful machinery, capable of grinding up the most obdurate shales, fire-clays, quartz, spar, calcine, lime, and ochre; and the closely welded stuff passed through machines to the cutter. Many of the fire-brick made in the United States, however, leave much to be desired, and consequently large quantities are imported from the English, Scottish and Welch makers. Especially does there seem to be a demand in several of the states for trustworthy silica brick. Most of those now made are too tender to stand much handling, and their contraction on cooling is excessive. The result is that numerous orders for silica bricks go abroad, although wares equal in merit to the best Dinas, Ganister, and Bauxite, might easily be made in this country. It is within the knowledge of the writer that certain smelters in Lower California recently gave $200 per thousand for a consignment of silica brick from England, and many a furnace in the west, using a poor class of clay fire-brick, or worse imitation of silica brick, is a source of as much heartburning as hearth burning to its owners. For a silica brick which will form a sound lining to a furnace without buckling or contraction, and mortared with its own material, there should be an increasing market in many localities.



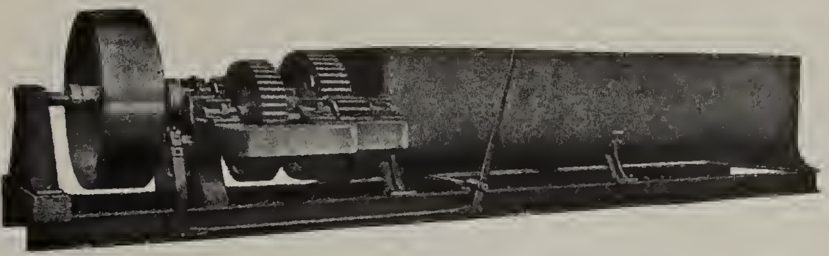
The New Clay Digger.



An Old Pug Mill.

A near-cousin to the clay fire-brick is the vitrified type, which is rapidly gaining ground in general and civic popularity, and many cities are finding how economical a paving it forms. But the paving brick, although it must stand vitrification without losing its shape, need not be manufactured from a fire-clay. Shale is largely used for this special purpose and, when well made, the product is tough, will stand abrasion, and impact, and is absolutely non-absorbent.

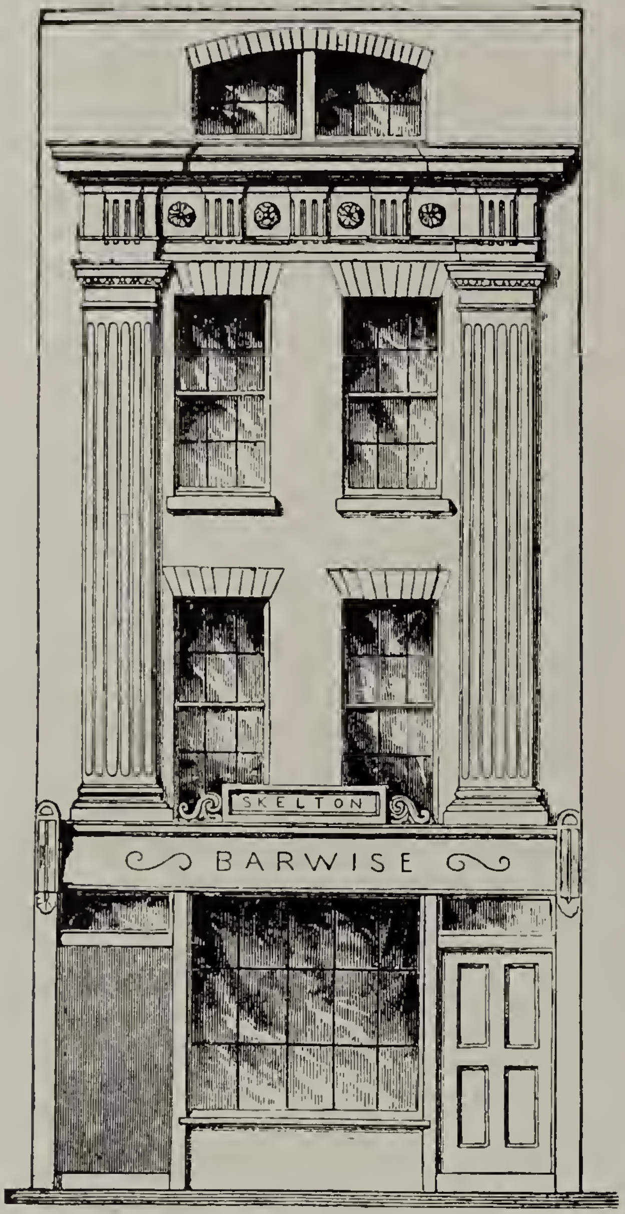
To this province of our subject also belong the vast quantities of fire-proofing which are annually turned out for the huge new buildings of our modern cities. Some varieties are solid, some hollow, some arched, some flat, and for the walls, a lathing type is used containing an admixture of sawdust to enable nails to be driven into it. Terra-cotta tiling and sewer pipes are also included as part of the output of many brick-makers as well as the beautiful colored and glazed bricks for ornamental work.



Modern Pug Mill.

Limitation of space forbid any detailed description of the machinery by which these varying kinds of bricks are produced, but we may briefly touch on the salient points. There are practically three processes—the soft-mud, the stiff-mud, and the dry-clay methods. The machines for treating the soft-mud are generally used by the smaller makers. Their characteristic features are usually an upright receptacle of wood or iron containing a knife-bearing, revolving central shaft, with curved arms at the bottom to force the clay into the press-box. After the moulds are filled under pressure they are moved forward to the delivery table.

Stiff-mud machines, as the name implies, treat stiffly tempered clay, which is forced through a die by either a plunger or an auger. The plunger gives bars of clay of fixed lengths, and the auger a continuous bar or stream. In both cases the bars may be cut into bricks by means of parallel wires, but, with the auger machines, automatic cutters are generally used, thus making the process continuous, and increasing capacity of output while decreasing power expended. The bricks may be cut either endwise or sidewise, and the machines and their product are known accordingly, as end-cut or side-cut. The fault of these auger machines is that they tend to give the brick a laminated structure which weakens its compactness.



Carved Brick Work.

There must be nearly ten thousand concerns in the United States which may properly be termed manufacturers of brick, and, of these, at least half use what is known as the stiff-plastic process. This is, undoubtedly, the most economical of all. It saves about 30 per cent in labor, and makes a perfectly homogeneous brick. If the material is of a hard or flinty nature it is first ground in a dry-pan, and then passed through a screen to the pug-mill or mixer. When mixed to a correct consistency the clay passes into the brick machine, where it is compressed by a heavy auger into a solid and continuous column of the desired width and length, which is then cut into bricks by steel wires on a revolving wheel. A belt traveling somewhat faster than the column of clay separates the severed cubes, and, for the making of face-bricks, carries them to the repressing machine. This latter squares their corners and edges, gives them a smooth and polished surface, and imprints upon them any lettering required. How useful to the great builders of ancient Assyria and Egypt would have been such a machine. Its inventor might have ruled a province and possessed more palaces and wives than Solomon. In one of the oldest temples in the world, recently excavated at Bisya in Babylonia, the explorers discovered in the lowest courses some large square bricks engraved with the name of Sargon, who reigned there 4,000 years before the birth of Christ. With one of the above machines he could have signed his name on the bricks of his city as readily as Mr. Micawber did on I. O. U.'s.

Not more than ten per cent of the manufacturers of brick in the United States use the costly dry-press method. By this process the finer clays are pressed into steel moulds by machinery, exerting a force of 20,000 pounds or more to the square inch. The clay is practically dry when this is done, and the cubes can therefore be handled at once without preliminary drying. The objection urged by some against this method is that the brick resulting is too porous and apt to absorb moisture, and consequently possesses a tendency to disintegrate. The output is, however, very dense, although the component particles of the bricks are not well united. Still, for special and ornamental purposes, this process has distinct advantages, though the brick is the most costly of its kind known to the trade.

All the soft-mud brick, and some classes of the stiff-mud brick, after leaving the machines, must be dried in the open air, or in covered sheds, or in heated tunnels, before they are passed to the kilns. These kilns are of various types, but, in large works, the most popular is the "continuous" form. This kiln has a series of connecting chambers, which are fired in succession. The heat and evolved gases travel from one division to another, so that the operations of filling, burning, and emptying can be carried on in different chambers at the same time. Fire-brick and refractory ware are frequently burned in down-draught kilns, lined with fire-brick. The burning requires from five to six days, and the cooling several days more. Paving-brick, in the middle west, are generally burned in the down-draught kilns. The temperature, while burning, ranges from 1600° to 2400° Fahrenheit.

Not even the manufacturers could give an accurate estimate of the number of bricks which are yearly made in the United States, but it is probably far in excess of the enormous figure of twenty-five billions. We cannot wholly agree with the assertion of "Americana" that "modern American-made brick, of whatever design or quality, is ten times harder and more durable than that of most other countries, though produced at a fraction of the cost." From time immemorial Dutch and English bricks have held a pre-eminent position in the markets of the world, and are probably cheaper and better on the average than any rivals. But looking to the vastness of North and South America, and the wide diversity of the mineral wealth of the United States, we may unequivocally accept the statement of "Americana" that "but for the great weight of brick, our exports would be enormous. Each year American ingenuity perfects additional machinery enabling better and cheaper brick to be made, and already the brick made today will outwear five of those made even ten years ago."

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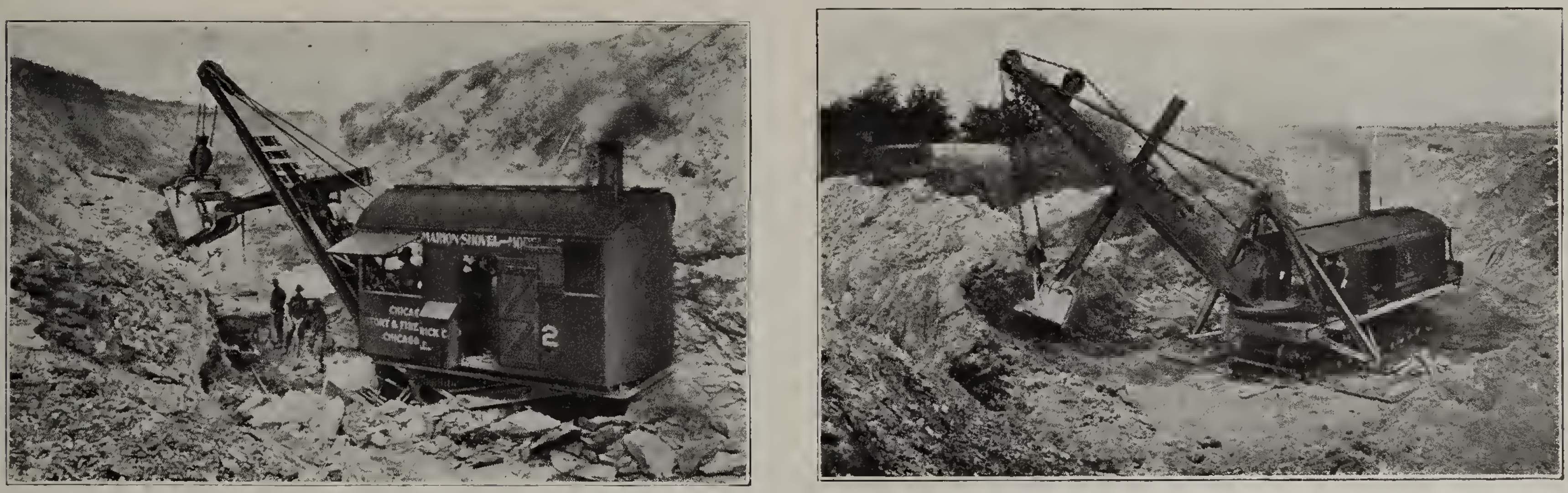
J. G. Kulzer and J. D. Slocum, are considering the advisability of establishing a new fire clay manufacturing plant at Valley, Wash.

# Where Ajax Fire Brick Are Made

Near the City of Ottawa, Illinois, between the Fox River and the old Illinois and Michigan Canal, there is a plant owned by the Chicago Retort & Fire Brick Company that is making a fire brick so good that it has quadrupled this company's business in the last seven years. This means something. There are other things about the making of this fire brick that count towards its success, but its merit is chiefly due to the fire clay that is mined from the wide flat between the waterways. The eigh-foot blanket vein, lying from twelve to fifteen feet beneath the surface of that bit of prairie, is yielding to the plant a hundred and fifty thousand tons of fire clay a year.

View of the Ottawa Plant, Located on the C. R. I. & P. R. R.—85 Miles from Chicago.

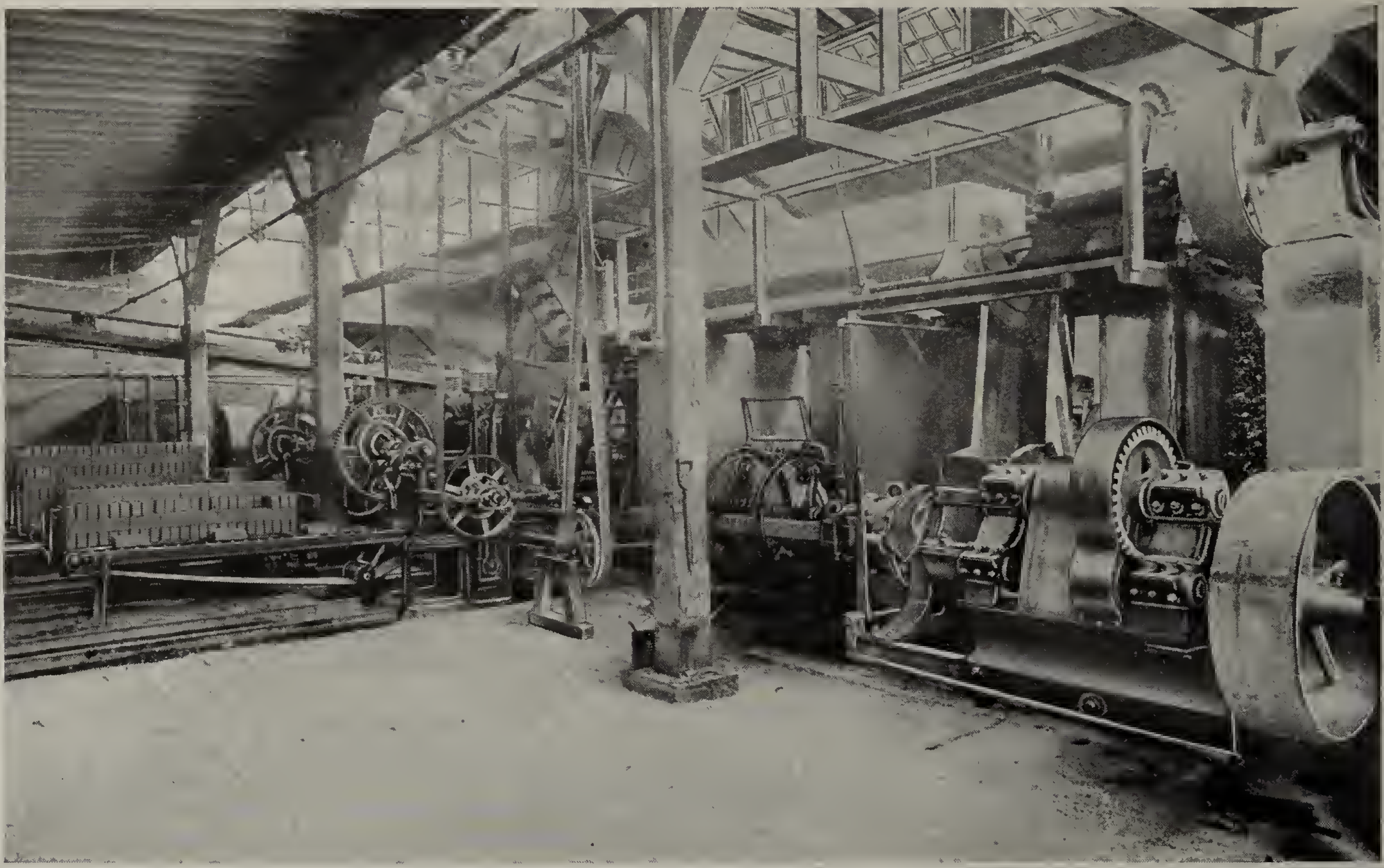
It is many years since the beginnings of this company's business reputation were made in Chicago. A plant for the production of hand-made brick and special shapes, mostly for local trade, used fire clay from the Ottawa deposit through a long period of gradual and substantial growth before actual ownership of the clay-beds was made necessary by the demand for the product. But in 1902, with the cumulative effect of years of good brickmaking as its cause, business came to the firm in such a volume as to force the acquirement of the source of fire clay supply. A brick plant that stood on the site of the present one, which is now a landmark beside the Rock Island Railway's line near Ottawa, was purchased together with two hundred and forty acres of land under which the tried and proved fire clay lay easily accessible. The results of operating with increased facilities and unlimited supply of material brought immediate effect.



Gigantic Steam Shovels at Plant of Chicago Retort & Fire Brick Co.

The reputation of Ottawa fire clay had been well established. The same principles were used in the development of the enlarged resources that had made success for the Chicago plant, and the fire brick manufactured in both locations have competed so successfully with the best made anywhere in the country that their sale has compelled constant increase of facilities and equipment. New kilns, new machinery, and, finally, a complete new plant have been erected, to make more and ever more fire brick.

"Complete" may scarcely be the word to use, for the plant cannot be finished. To finish it would mean to set a limit on production. No money has been, or is being, spared to secure mechanical appliances and labor-saving devices to make the plant as good as its raw material—which will be good enough.



Machine Room Where the "Ajax" Brick Are Made.

The secret of this firm's business, therefore, is no trade secret. It is simply high-grade fire clay and high-grade workmanship plus eternal vigilance. Two of these ingredients do not show in any analysis, but they enter into the making of every fire brick and they show under the stress of long, hard use, to the eyes of the understanding judge. But the first—the fire clay—can be analyzed and tested. Good fire clay is hard to find. It is generally deposited under coal, as at Ottawa, and located at depths varying with nature's whims. It must be free from fluxes and of such a composition of silica and alumina that it will resist the action of gases and fluxes at tremendous temperatures. It must make a brick that is changeless and practically indestructible under the severest of furnace conditions. In fact, it must make a brick that will "make good."

That is the sort of fire clay on the company's Ottawa property. With coal enough above it to burn it and with an over-burden that can be cut away by a steam shovel, the clay rests on a bed of St. Peter's sand-stone that lies so high that it has drainage from it to the river. A short distance away the clay-vein dips to a depth of from seventy-five to two hundred feet under ground, too deep for open mining and with a poor roof for tunneling. But just here the clay lies so near the top that the surface water of the ages has percolated through it, dissolving and washing away solubles till less than a single per cent of combined alkalies is left. By the chance of its geological position it has been made as nearly a perfect fire clay as nature has created, and fire brick manufactured from it have been tested to 3,200 degrees F. without even surface fusion, and have withstood a crushing strain of 4,000 pounds per square inch.

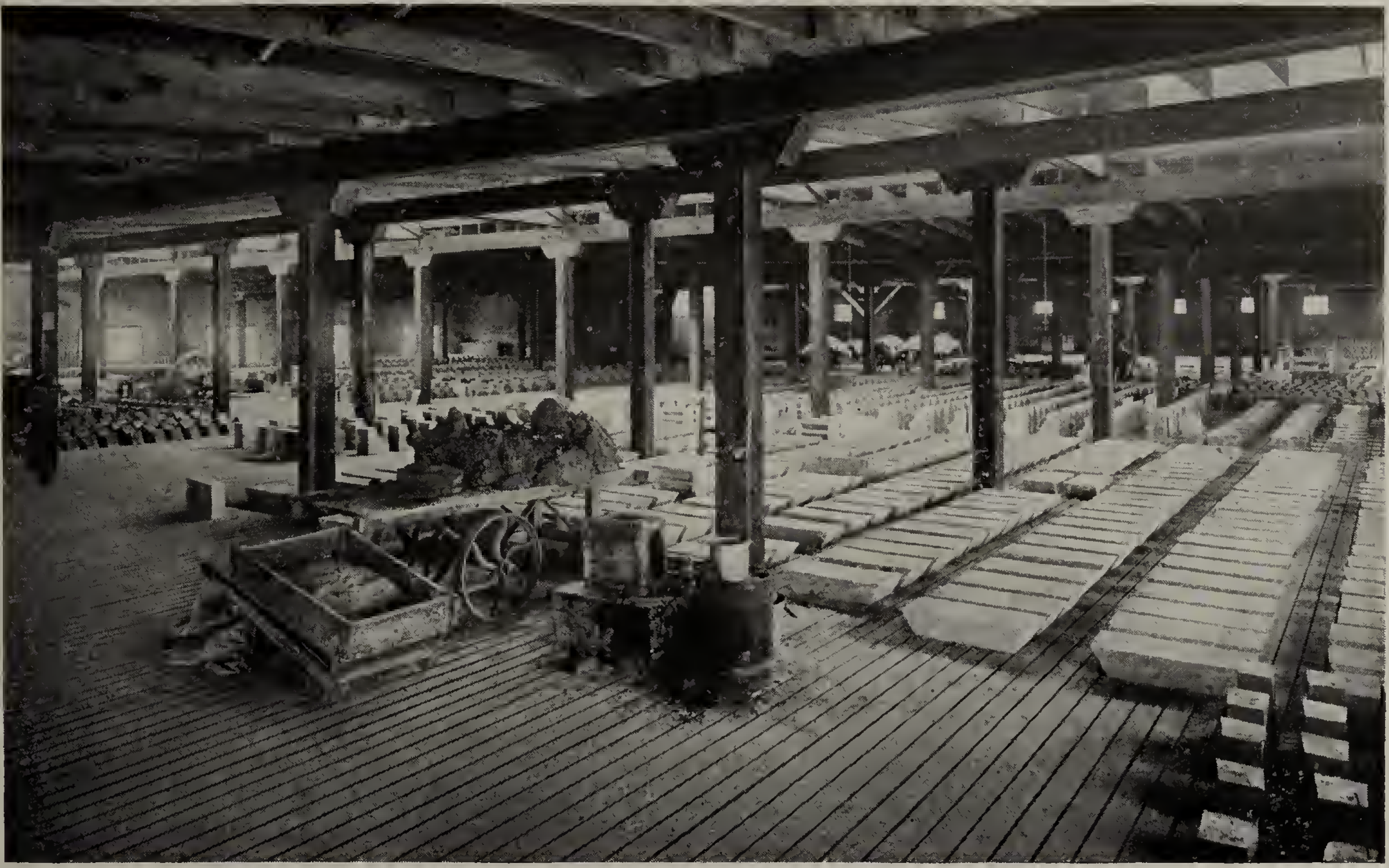
Manufacture begins when the sixty-ton steam shovel begins to lift the overburden. A thirty-five-foot boom and a dipper of two yards' capacity enables this machine to cut what is literally a furrow from forty to fifty feet in width, stripping first down to the overlying coal vein, and then dumping its waste into old cuts where the fire clay has been taken out. Men and teams have been economically displaced by this big shovel, which cuts alike through loam and yellow clay, through soap-stone and hard shale. In its wake, after the coal is removed, a revolving steam shovel, not quite so large, but cutting in a complete circle, takes on the work of uprooting the eight-foot gray vein of almost rock-like fire clay and filling the dump-cars on the track of the plant tramway which follows in whatever the cut leads. A donkey engine hauls these cars away, out of the cut and up to the level of the plant.

Here the fire clay is dumped on a grating which allows all pieces under three inches to drop through on to a conveyor belt while the larger lumps are piloted by one man down an incline to the crusher. The conveyor runs under the railroad's right-of-way and up an incline to a point where a portion goes to the bins for grinding. The balance goes to the weathering pile to be worked up after sufficient exposure, with Flint fire clay and grog into the well known high grade "Superior" and "Sterling Crown" brick.

To describe the plant is simply to put down on paper a list of the things that every good clay worker has or hopes for. Steam shovels, dinkey locomotives, belt and roller conveyors for raw material and finished products, the best of brick machines, represses, and the latest and highest developed type of dryer. Kilns a plenty, machine, blacksmith and pattern shops with electrical power, in short, everything is here that makes a complete plant in all particulars with a constant aim of keeping down the cost of manufacture.

The "Ajax" brick is of first importance to the clay worker without, and the brick maker within, and sixty thousand a day, a total of over eighteen millions a year, are made and sold. Of first importance to the maker, because the quantity is so large as to justify a heavy investment in the many labor saving devices installed. Of first importance to the clay worker, as it is his demand that has caused the continual growth of the company. No longer is it believed by the fire brick user that the geographers drew the state boundaries around the best fire clay deposits, and marked them Ohio or Missouri or Kentucky. The demand for the Ajax fire brick has proven this a fallacy.

The clay is of most importance and the plant is not to



Portion of Floor Where Special Hand-Made Shapes Are Molded and Dried.

be overlooked, but the organization is by no means of the least importance.

The company's general offices are in the Commercial National Bank building, Chicago. Charles S. Reed, the president and treasurer, is a practical fire-brick man, and has been with the company for twenty-two years and has had a practical working experience of every department. H. L. Ahrbecker, the secretary and office manager, and George I. Dieterich, the sales and traffic manager, are both men of long experience in the fire-brick business. F. A. Guignon, the superintendent of the Ottawa plant, is a man whose fire-brick experience was gained in other fire-brick plants. The principal point, however, is their loyalty to each other, and their sincere belief in their products. Their clay is right and their plant is right and their motto is "If it isn't right we will make it right," and it is "Ajax Fire Brick" first, last and all the time with them.

## INCREASES CAPITAL STOCK.

The Des Moines (Ia.) Clay Mfg. Co., which has recently increased its capital stock from $35,000 to $150,000, is experiencing a great increase in business.

The company has been perfecting a new method of making brick and expects to greatly enlarge the plant in order to keep up with the demand for the new product. The new brick are made with two holes passing through them, these holes the company claim will make the erection of double walls unnecessary. Branch offices have been established at St. Louis, Kansas City, Omaha, Sioux City and Oklahoma City. The main office is at Des Moines.

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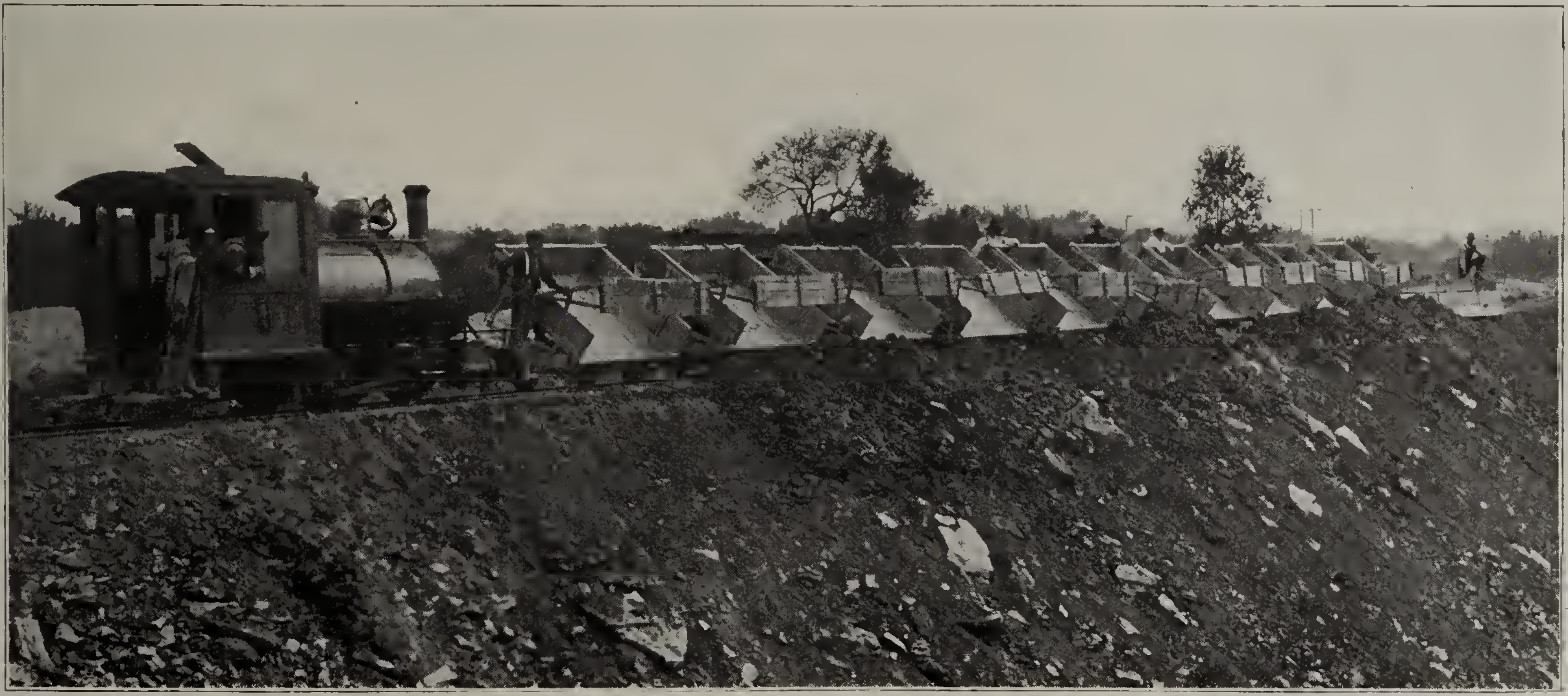
William Davis, of Des Moines, is contemplating the establishment of a new brick and tile plant at Oskaloosa, Ia.



8-Ton Davenport Locomotive Handling Overburden at Plant of Chicago Retort & Fire Brick Co.

## LOUISVILLE, THE BEAUTIFUL, SELECTED FOR THE NATIONAL CONVENTION.

Clay men throughout the country are looking forward with pleasurable anticipations to a visit to Louisville, the flower of Kentucky.

To all such she extends a hearty welcome to her charming and hospitable city. The invitation is extended by the city at large but more especially by the clay fraternity composed of sterling men, who are proud of their city, know its possibilities, believe in its future, and when you cast your lot with them you will find the latch key always out and rest assured, with their reputation for hospitality they will do all in their power to bring about a feeling in your heart, which if given utterance would be, "I am glad I came." Every plan has been made to make your stay a pleasant and profitable one in the blue grass region, where the moonshine lends a delectable flavor to certain distilled delicacies, the tobacco has a larger leaf and a better flavor. There the sky is bluer, the horses faster, the girls prettier, they say, than in any other state.

Possessed of superior advantages of situation, the second city on the Ohio river, the Metropolis of the Western States, the center for a large number of trunk lines, standing as it does, midway between the North and South, Louisville is admirably situated for convention purposes, being a convenient meeting place for those coming from the North, South, East and West.

It is 110 miles from Cincinnati.
It is 110 miles from Indianapolis.
It is 423 miles from Pittsburg.
It is 794 miles from Washington.
It is 377 miles from Detroit.
It is 537 miles from Buffalo.
It is 956 miles from New York.
It is 1034 miles from Boston.
It is 323 miles from St. Louis.
It is 350 miles from Chicago.

Louisville has many attractions and points of interest including several spacious parks, three libraries, many churches, theaters and concert halls, many miles of paved streets, lined with costly and elegant residences.

Reduced railroad rates on the certificate plan, have been granted by the Southeastern Passenger Association which covers all the territory south of the Ohio and east of the Mississippi river, and it is anticipated that the other traffic associations will concur.

Most of those attending will doubtless want to visit the famous Mammoth Cave, located on the Louisville & Nashville railroad some ninety miles from Louisville, and accordingly arrangements will be made for an excursion there Saturday the 11th. Some members desiring to visit New Orleans after the convention, arrangements will be made for special rates and accommodations for an excursion South if a sufficient number of the members arrange to go. A trip to the Panama Canal has also been proposed. There is a line of fine ocean steamers plying between New Orleans and Colon, which make the trip in five days each way.

The convention program will provide for a series of instructive papers on the most important phases of the business. The chief aim and purpose of the Association is the dissemination of information among the members.

The hotel accommodations are the very best. The Seelbach will be headquarters, and is in the same high class as the Fort Pitt, with which the members generally were so well pleased last year. The following are the rates agreed upon, European plan:

Single rooms, without bath, for one person, $2.00 and $2.50 per day. For two persons, $3.00 and $3.50.

Single rooms with bath, for one person, $3.00 per day and upward. For two persons, $4.00 per day and upward.

For each additional bed put in either of the above rooms, the charge will be $1.50.

The proprietors of the Seelbach operate two other hotels in the city, The Old Inn and The Victoria, each of which offer excellent service at lower rates.

Convention Sessions will be arranged about the same as in former years. The first N. B. M. A. session will occur Wednesday afternoon. Ample facilities will be provided for all the affiliated bodies and for the display of specimen brick and other clayware, models of machinery and appliances. The meetings of the National Paving Brick Manufacturers' Association will be held in the Assembly Hall of the Seelbach Hotel, beginning Monday morning, February 6. The business sessions of the Building Brick Association will be held in the Red Room of the Seelbach Hotel beginning Tuesday morning. The association will hold a public session in the convention hall Thursday forenoon. The National Clay Machinery Association will hold its sessions in the music room of the Seelbach Hotel beginning Tuesday morning.

## THE MINNEAPOLIS CONVENTION.

The Northwestern Clay Association which had planned to hold its annual meeting in Minneapolis, Feb. 1 and 2, found a conflict of dates with Wisconsin, and have changed its meeting until some time in April. A number of members had other plans which conflicted with the early dates and with a later date, a larger meeting will be possible. It is expected to make the program the best and most attractive yet offered. The brick industry is looking forward to a livelier and better season and the Association proposes to do its part in bringing this about.

The gathering will be at the rooms of the Builders Exchange, and will be, for the first time, a meeting of two days. All other meetings have been but a single day. It is expected by the addition of a day to include an evening meeting and banquet, instead of the noonday banquet which has been practiced in the past. In addition to this plans are being laid for the best array of subjects which has yet been presented. Ira C. Jones, of the Minneapolis Brick and Tile Company, is chairman of the program committee, and is working hard to formulate a program which shall include matters of interest to every class of members which the organization has. He has secured R. B. Hinkly, of Luverne, Minn., to have charge of the most important subject of tile. Mr. Hinkly is a very important factor in the brick trade of southwestern Minnesota, and as such will be able to command the attention of those interested. He is expected to have something of exceptional value. A topic which is expected to present many ideas of value to the manufacturer is that of finding a market. The importance of this subject will be highly appreciated by those who have experienced the difficulties which beset the manufacturer after he has his plant well running to find a satisfactory outlet for his wares. Closely associated with the subject is another on finding the cost of production. Here again is a matter which commands the interest of every manufacturer, and it is hoped that the subject will be handled so as to present some new ideas.

# THE CHAMPION OF WELLSVILLE

## An Ohio Brick Plant Made Successful Through Systematic and Modern Methods

"Down in a green and shady dell
A modest violet grew;
It drooped its head, as if to say,
I'm hiding here from you."

This little stanza, which has been sung so often in the school days of yore, might have been in the minds of those who started the formation of the Champion Brick Co., of Wellsville, O., first for the purpose of making sewer pipe, and which later has been turned into a plant where light-face brick is made.

Hid by two high hills, and down in the valley, is where this plant was built a few years ago. Any photographer who attempts to procure a picture of the work has a difficult task before him. But, like the modest little violet, there stands the plant, down in the green and shady dell, but, at the same time, a beehive of industry. It is claimed that the plant is built on a site unlike anything of the kind in the country.

Champion Plant at Wellsville, O.

System is used in manufacturing and in mining. While many other brick concerns throughout the country have a system connected with one department or another of their business, yet a system is followed by the management of the Champion company, both in manufacturing and mining.

The services of a mining engineer have been invaluable to this company. Blue prints of the clay acreage was made by R. H. Russell, of Toronto, O., and at stated intervals, Mr. Russell visits the mine, advises the mine foreman what course to follow, and inspects the openings made since his last visit. The result has been that the mine is being operated upon a system that has made money for the firm, and saved it no end of possible trouble.

While the plant proper occupies four acres, there are over 100 acres of a Kittanning vein of fire clay available. This vein varies from 14 to 19 ft. in height and its width has as yet never been determined. In fact, the vein worked here is the same as that mined by the East Ohio Sewer Pipe Co., at Irondale, O., ten miles away. The fact that the mine foreman works according to the plats furnished by Engineer Russell has also produced an increased output of clay.

Clay is brought from the mines in two-ton cars of the firm's own make, and the output in clay is from 135 to 140 tons a day, equal to a production of from 40,000 to 50,000 bricks daily. This clay is not weathered, but dumped from the mine cars by a gravity shoot into the crushers, and then by gravity falls into two nine-foot Stevenson dry pans. A belt-bucket elevator lifts the ground clay to the upper screens, and then falls on a perforated plate, from where it drops into bins of 30-ton capacity each. These bins are immediately over the pug mill, which is also of a Stevenson pattern.

Attached to the Freese brick machine is a Freese pug mill, giving the plant a daily production of 50,000. On the cutting table there are four arms, each with fifteen wires, which cuts sixty brick to the revolution. The brick is then placed on a single deck dry car, these being made by the Ohio Ceramic Co., of Cleveland, O. There are 180 of these cars, each with a capacity of 554 brick.

Raymond drying system is used, gas being the fuel. There are six-double-track tunnels and the brick is allowed to remain in the tunnels about thirty-six hours, and from the tunnels the load is taken on the same cars to the kilns.

There are twelve 30-foot kilns of the beehive type, and these are fired with three-quarters coal from the Pittsburg field. A heat of about 2,400° is maintained while firing. The fusing point of the clay used here has been tested at 2,785°.

So great is the demand for the product of this plant that very few brick are kept in stock, shipments being made in carload lots direct from the kilns. Work continues throughout the winter season.

Eight shades of grey-face brick are made, two shades of greys, two in buffs and four in iron spots.

The power plant is a model of neatness. A great saving in cost has been obtained by the use of a 175 h. p. Miller gas engine of the double-cylinder type, and one 75 h. p. single-cylinder St. Mary's gas engine. No large boilers are used, but there is one small boiler in use to procure lubricating steam. The water used here is obtained from a never-failing "run," which flows along the hillside to the right of the plant. A dam has been built in the run at a height of 40 ft. above the property, toward the north, this giving a constant and strong fall of water into the water tanks. Warm water is taken from the jackets in the gas engines and used to pug the clay. The firm has no water rent or taxes to pay, which is also a saving not many other firms are favored with.

A noticeable feature about this plant is found in the fact that the clay is constantly moving in one direction—to the south. As it comes from the mines it falls southward to the plant, and its course through the works to the kilns and cars is also to the south. Not once is a piece of clay reversed in the making of a brick.

A number of improvements are to be made here soon. New stock sheds are to be erected, the space over the "run" will be used for this improvement. Additional kilns are also contemplated, for with present kiln capacity, the firm has a hard time to keep up with orders.

Although a red-face brick can be manufactured, this product is only turned out on order. Shale for this purpose is also available here.

When an eastern dealer wants a fire clay face brick, he is compelled to come to the Pittsburgh and Ohio valley districts or markets. It is claimed that the plants making this character of brick are few, and the demand is constantly increasing.

Officers of the Champion Brick Co. are: President, John Deemer; vice-president, Thomas H. Silber, Sr.; treasurer and sales manager, Thomas H. Silver, Jr.; general superintendent and manager, G. C. Channell.

## BRICK INDUSTRY IN DENMARK.

There are in Denmark 389 brick yards which are inspected by the government, and about 125 small brick yards which do not come within the provisions of the government inspection laws. In gathering statistics in regard to the annual production of the 389 brick yards, 318 have directly reported, while the remaining 71 are valued approximately. The 318 brick yards reported a total production of 521,240,000 brick, while the 71 non-reporting yards manufactured about 69,810,000 brick. The small yards manufactured in all only 25,000,000 brick. This brings the total yearly production of 514 brick yards for 1907 to 616,000,000 brick. This quantity is 44,000,000 brick less than were manufactured in 1906. This loss can be traced to the brick consumption of the city of Copenhagen, which was very poor last year. Building was not very brisk, and while the smaller towns and the country at large used about the same quantity of brick as before, the total loss was made by the brick yards surrounding Copenhagen.—"Lerindustrien."

## OPENING OF NEW CLAY PLANT.

The formal opening of the Alberta Clay Products Co. on Nov. 26th, at Medicine Hat, Can., was in the form of a celebration by the entire town. A crowd of 2,500 participated in the festivities, including several hundred out-of-town guests. A banquet was served in the immense drying chambers, seven hundred being seated at the tables. This plant is considered the finest of its kind in the world. Among the machinery installed is a Boyd brick press.

## GROWTH OF A BRICK CONCERN.

The Duffney Brick Co., at Troy, N. Y., are proud of their plant which they consider the best equipped plant in northern New York, worth at least $150,000, and additional machinery has been added for the manufacture of paving brick. Mr. Wm. Duffney, president and superintendent of the plant, claims to have made 13,000,000 brick during the year, which is a good record.

The Charlestown, W. Va., brick plant has started operations at their new plant near town.

## LIVE ADVERTISING BY LIVE BRICK MEN.

The tendency of brick manufacturers throughout the country at the present time is toward taking advantage of the assistance which printers' ink can give them in their selling efforts. We have noticed during the past six months many telling advertisements in newspapers published in various parts of the country, and we commend the enterprise of these advertisers, and feel sure that the money which they spend for this purpose will be well invested.

Two purposes are accomplished by such advertising: first, the impressing upon the minds of the public in general the merits and advantages of brick for building construction; and, second, the creating of a more friendly feeling on the part of publishers of newspapers, which will result in the free publication of much reading matter tending to promote the use of brick.

For the benefit of those who have not time to think up their own advertisements we are publishing below two ads which recently appeared: that of the Standard Brick Mfg. Co., Knoxville, Tenn., and of the Malakoff Press Brick Co., Ft. Worth, Tex.

### BRICK TALKS!

*Repair Bills.*

Good Brickwork needs no repairs.
It never has to be painted.
It does not rust.
It does not twist, shrink or crack.
It does not rot.
It does not disintegrate or crumble away.
Brick Withstands all climates.
It has stood the "test of time."
It is good for centuries.

The earliest records of man are found inscribed on tablets of brick, while everything around them, even the "rocks of the ever-lasting hills" has crumbled to dust.

The Brickwork of ancient Babylon, Egypt and Rome still challenges the admiration of the world—

There are no repair bills with Brick.

*When You Build Use Brick.*

STANDARD BRICK MFG. CO.

### MALAKOFF PRESS BRICK CO., LTD.

Face Brick, Fire Brick, Fire Clay.

The Malakoff Press Brick Co., Malakoff, Tex., secured the order for half a million of their Face Brick for the new Butler Building at Dallas, which is the largest order ever placed in the state of Texas for Face Brick. MALAKOFF BRICK was given the preference over many competitive Bricks from all parts of the United States.

CAPACITY 50,000 PER DAY.

1,000,000 Brick in Stock at All Times for Immediate Shipment.

Nature's own colors, burned to the hardness of iron. No artificial coloring. Write for Malakoff Brick Talks, free, by mail.

Works—Malakoff, Texas.
General Offices—Fort Worth, Texas.

# ELECTRIC POWER IN CLAY PLANTS

## Advantages of Direct Drive and Increase of Mobility Practically Demonstrated

Let us consider the layout of a plant which will have one brick machine; a plant of this kind will have a capacity of 30,000 to 150,000 bricks per day. A larger plant will mean a multiplication of the units required in this plant.

The applications of power required are as follows: 1—Hoist or conveyor from quarry to crusher. 2—Crushers. 3.—Dry pans. 4—Conveyor to screen. 5—Pug mill. 6—Conveyor to auger. 7—Auger. 8—Cutter. 9—Conveyor to repress. 10—Repress. 11—Conveyor from repress to cars. 12—Blower. 13—Exhaust-fan.

Mosaic Tile Works Operated by Electricity.

The above present the applications of power in a plant working with hard material; when soft material is used, one or two may be omitted.

Some of the machines may be combined with others by belting from the same countershafts, or by driving a small machine from the shaft of a larger one. The conveyors in the mill are all rather short and require little power. Also, the conveyor from the pug mill to the auger can be dispensed with if the pug mill is placed over it and a chute used instead. Furthermore some manufacturers use the repress very seldom; hence these can be grouped or combined with some of the conveyors.

Grinding Cylinders in Glaze Roofing—Mosaic Tile Company.

The different applications of power can then be combined as follows:

1— Conveyor or hoist from quarry to crushers. 2—Crushers. 3—Dry pans. 4—Pug mill. 5—Auger. 6—Blower. 7—Exhaust fan. 8—Conveyor from dry pan to screen; conveyor from pug mill to auger. 9—Cutter; conveyor from cutter to represses; represses; conveyor from repress to cars.

Power can be applied to all the points above mentioned with a line shaft and a maximum of two countershafts. At the same time an approximate minimum of twelve belts is required.

The making of brick is practically a continuous process. After the material has reached the plant there is little or no pause in its progress, until the brick is formed ready for drying; this means that practically all the machinery is in operation at one time. However, the blower and exhaust fans are required to operate continuously when there is a change in the kilns. As a rule, brick manufacturers do not consider it worth while to operate the entire plant at night and the main plant is therefore shut down during this period. Generally the blower and exhaust fan are required to operate 24 hours per day, which means that with either gas or steam engine drive, a small auxiliary engine is required or the main engine is operated with little load. Either method of drive requires considerable attendance and the steam engine

Motor Drive in Plant of Mosaic Tile Company.

drive has the additional disadvantage of requiring the boilers in operation.

The engine drive also has the disadvantage of requiring a considerable amount of line shafting and belting to distribute power about the plant. Due to the great amount of dust that is always present, the line shaft bearings require a considerable amount of care, and the belting wears out very quickly.

Motor Driven Pan—Elkins Brick Company.

Let us consider the application of motors to the various machines, under the condition that the manufacturer buys power from a central station. By this method of drive, the manufacturer is able to avoid the line shafting and belting which cost considerable to install and which are a source of annoyance and expense during the life of the plant. The amount of attendance required is also reduced to a minimum, as motors require little attention beyond blowing out occasionally, and oiling. When one part of the plant is required to be in operation and the remainder idle, this condition can be secured at a power cost proportionate to the amount of work done. With an engine-driven plant, the friction loss of the line shafting is practically constant no matter how much work is being done; when but a part of the plant is in operation, this loss will often consume a considerable amount of the power generated by the engine.

By the use of individually applied motors, it is also possible to avoid the use of clutches. Clutches are points of weakness in the power to transmission system and are a source of annoyance due to the rapid wearing of parts. Especially is this so on the auger, on which a clutch may be used six or ten times per hour, due to foreign material clogging the machine, or the breaking of the cutter wires. With an individually applied motor, the auger and the driving motor can be stopped by opening into the power circuit and started again as quickly and as easily as throwing out and in a clutch.

The motors have the advantage over the gas engine in that they are capable of considerable overload. The capacity of a motor as compared with simple steam engines is greatly due to the fact that the motor maintains practically a constant speed throughout its operating range, while the speed of the engine will vary, not only with the boiler pressure but also with variation in load. Motor drive therefore gives the advantage of increased average speed with increased production. An important feature of the motor drive is the protection afforded by the fuse or circuit-breaker to prevent damage due to extreme overload conditions.

If central station power is not available, it is hardly worth while for a brick manufacturer to consider a complete power plant, unless the brick plant is of large capacity and a considerable amount of machinery is required to operate 24 hours per day. By the installation of generators, etc., the manufacturer can obtain the advantages due to the application of individually applied motors, but there is the disadvantage of the high cost of installation and a higher cost of operation. The operating conditions are very similar to that of the engine driven plant, as the generating apparatus is required in operation whenever any part of the plant operates, there is consequently a large friction loss and high operating costs on light loads.

Vitreous Pump—Mosaic Tile Company.

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James H. Gray, treasurer of the Illinois Brick Co., died recently at his residence, 4733 Michigan Ave., at the age of 47 years. He had been ill several weeks.

## ELECTRIC MOTORS INCREASE EFFICIENCY

One of the world's oldest industries, the manufacture of pottery, has found a great help in the most modern form of power, the electric motor. Motor drive has proven itself readily adaptable to the machines in a pottery. It eliminates line shafting with its attendant dirt and high friction losses, and it obviates the possibility of delays caused by necessary repairs to belts and shafts. Probably the greatest advantage of motor drive in a pottery is that it greatly increases the operating efficiency of the plant. At the Mosaic Tile Works, Zanesville, Ohio, the change from line shaft drive to motor drive increased the efficiency fully 20 per cent.

Elkins (W. Va.), Brick Co's. Plant—Operated by Electricity.

In making the change to motor drive, the Mosaic Tile Co. considered it worth while to throw out 200 ft. of belting. The Co.'s judgment has been justified. The saving in power cost, effected with the electric drive, will pay in five years for the expense incurred in throwing out engines and shafting and substituting electric motors.

The increased production, made possible by motors, has saved what was thought to be a necessary increase in machinery equipment. The company was enabled to rearrange much of their machinery to work more economically.

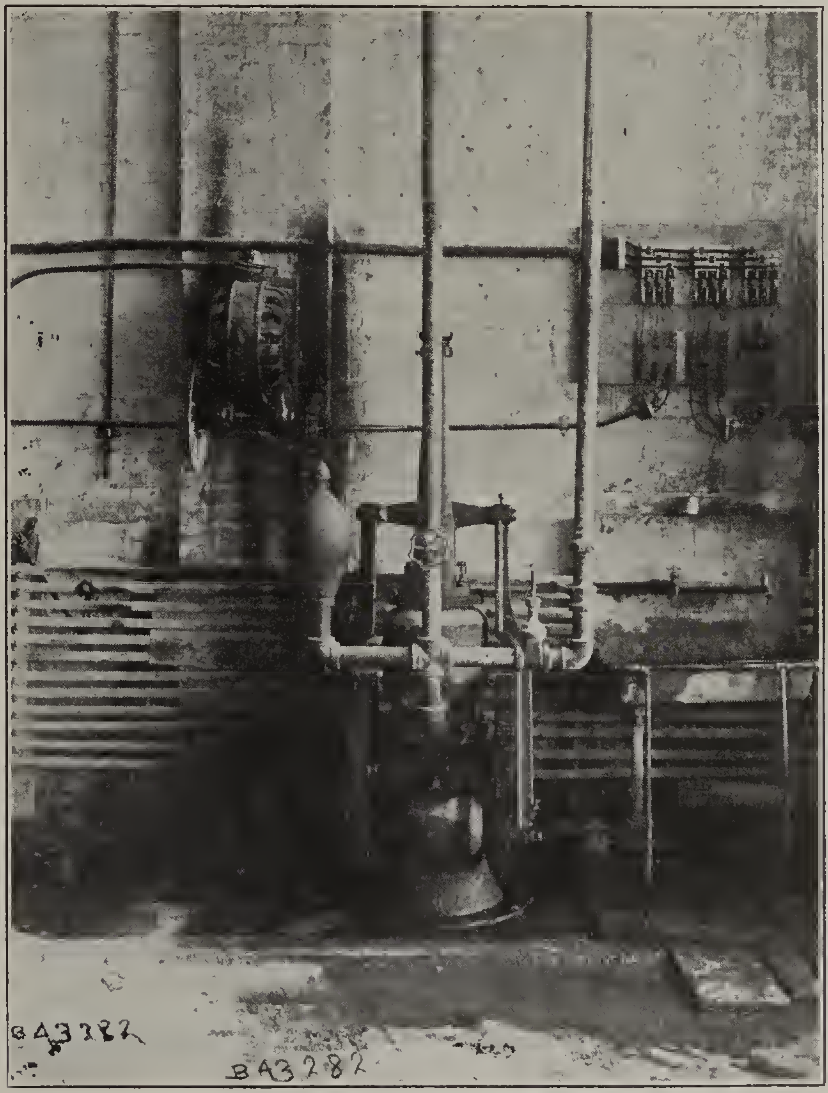
The motors are quite unaffected by the great quantities of dust and grit in the air, as they are of the induction type with no moving contacts. They were all made by the Westinghouse Electric & Manufacturing Co., Pittsburg, Pa., and are characterized by strong construction, self-oiling bearings, ample starting and pull-out torque and overload capacity for constant speed service, low operating temperature, and high efficiency and power factor.

Owing to the high speed, the belts on the dust mills formerly gave a great deal of trouble, which has now been entirely eliminated by direct connecting with the motor. According to the statement of Mr. J. M. Morton, the superintendent, the capacity with the old method was four tons per hour, but now it is five tons per hour, an increase of 20 per cent.

Since the use of electrical power in clay plants is at present a much discussed question the following extract from a letter by Mr. F. E. Keeler, vice-president of the Mason City (Ia.) Brick & Tile Co., is of interest to the practical "clay man." It states:

"As to cost and use of electrical power in clay working plants, none of our factories are operated to any large extent with electrical power. At the M. C. B. & T. plant we are using a 75-KW. generator which takes care of our lighting system. The 15-H.P. motor in the pit is used in connection with a large pump and this is located some 500 ft. from the machine room, so that we do not see how this could be operated at a reasonable cost or satisfactorily by using a steam jet pulsometer or steam engine at that distance.

We also have a 10-H.P. motor for driving the machinery in machine shop and at this plant we have two driers used with the waste-heat system, with one drier to the east of the plant and the other at the west end, so that our suction fans on the kilns are located about 150 ft. from the engine room. By operating these fans with a 25-H.P. motor we do away with carrying steam this distance, also the attention of an engineer at these two points and the upkeeping of two steam engines.



Motor Driven Deep Well Pump.

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## EDITORIAL COMMENT.

No moral obligation rests on a brickmaker to tell other brickmakers things that he has learned by study or experience.

His knowledge is all his own to keep, if he wishes to do so. But every brickmaker has been helped more or less by others, and if he reciprocates he will be no loser. So make your arrangements to come to the Middle West Clay Convention Jan. 17, 18 and 19 to ask and be asked questions in the rotunda of the Palmer House. You will find the most successful brick and tile makers the readiest to impart their knowledge.

The brick and tile maker who wants to find where the profits disappear should look into the methods used on the yard for firing the kilns and see if they cannot be improved.

The columns of Brick and Clay Record are always open to the discussion of any topic of interest to the clay working industry. We have no "hobbies and play no favorites."

The evenings are growing long, and one profitable way of passing them is to sit down after supper and write down your ideas on brickmaking, drying, burning, etc.,—and then send them to "Brick" for publication.

It is usually the busy, up-to-date brickyard man who finds time to do things when they ought to be done; for it is the busy fellow who knows the loss that comes from makeshifts and procrastination

There may be machinery that looks worse than a dusty, greasy, mud-covered, neglected brick machine, but we don't know what it is.

## *COMING CONVENTIONS*

**Northwestern Ohio Drain Tile Association, Toledo, Jan. 10.**
**Illinois Association and Middle West Clay Convention, Chicago (Palmer House), Jan. 16-19.**
**Iowa Brick and Tile Association, Boone, Ia., Jan. 25-26.**
**National Brick Manufacturers Association, Louisville, Ky., Feb. 7-10.**
**National Paving Brick Manufacturers Assn., Louisville, Ky., Feb. 6-8.**
**Building Brick Association of America, Louisville, Ky., Feb. 6-10.**
**National Association Manufacturers Clay Working Machinery, Louisville, Ky., Feb. 8.**
**American Ceramic Society, Trenton, N. J., Feb. 14-17.**
**Wisconsin Clay Manufacturers Assn., Milwaukee.—Feb. 1-3.**
**Northwestern Clay Association, Minneapolis, in April.**
**Brick Makers Association of Arkansas.—Date not set.**
**Washington Clayworkers Association, (and Pacific Northwest Assn.), Seattle, Jan. 26-28.**
**Ontario Clay Workers Association.—Date not set.**
**Louisiana Brick Makers Association.—Date not set.**
**International Tile and Mantel Dealers Assn., New York, February.—**
**National Builders Supply Assn., Feb.—**

## TIME FOR OVERHAULING.

The old year is now dead along with many old machines and implements around the ordinary plant, which should be repaired or replaced during the cold weather when it is not profitable to run heavy machinery at high speed. Out of date or worn out machinery and tools should be discarded. It is economy to throw them away or sell them to some one who is not pushing his product, or whose trade does not demand the use of high class ware.

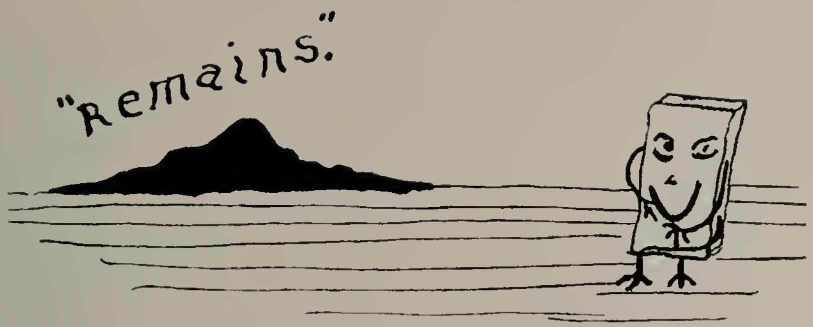
The continuous driving of engines, boilers and machinery during a busy season does not afford opportunity for investigation that a three weeks' lay-off will give, and any brick or tile maker will be surprised in overhauling his plant at the number of things in need of repair which he will discover, of which he was not aware while the plant was in operation. Then, with everything in perfect shape, he will be able to produce ware which will command attention and bring high prices.

It should be the earnest endeavor of every clay manufacturer to make every piece of ware better than the last, and in this he should have the support of every employee in order to make the goods he is manufacturing equal or surpass that of his competitor.

The reader will not have to go further than our columns to find improvements and repairs of every description, and also a buyer for all old second-hand machinery.

## KEEP THE PRICES UP.

Nobody expects a manufacturer to produce goods and sell them at a loss. It is not fair to yourself, to your competitors or your employes, whose salaries might later be reduced thereby, to cut prices and sell your goods at a loss. It also cultivates a habit of "jewing down" among buyers, which is to be deprecated. "Live and let live," and keep the price where all can make a fair profit, with a margin for depreciation of property.



### BRICK VS. BLOCK.

(A "Dream"-Tragedy!)

I hed a cur'us dream th' other night.
You'll laugh when I hev told you what about!
Leastwise, you will unless you're "fer" cement;
Then—I expect you'll kind o' snort an' pout!

Well, anyhow, I heard a ol' red brick
A-talkin' to a sickly cement block.
I couldn't hear their conversation plain;
Tho' 'twant their fault! They both knew how to talk!

Jes' words like these, I'd hear onc't in awhile:
"You chip an' spall! What? Pavement? Fearful clatter!"
"Th' rain an' frost—Huh! got th' rheumatiz!
You're damp an' cold! Gess I know what's th' matter!

"You're like a sponge! Jes' soakin' oceans in!
What? 'Cause you're cheap? Poor policy! Beware,
Of bargens sech as those! . . . . Since ol' B. C.
An' Bible writin' — . . . . Ruins standin' there!"

An' then—Good He'vens—(This was in my *dream*!)
Ther wuz an awful shriek—an' cries of "Fire!".
An' all around me rolled great clouds of smoke,
An' I could see th' flames a-mountin' higher!

An' then—there wuz a lull,—an' then—a hush!
An' then—I heard a shout, an' peals of laughter.
An' in my dream I sort o' hobbled out—
(My nightmare dozed. I tied it to a rafter!)

An' there I saw that common ol' red brick
A-holdin' both his sides—(I can't forget!)
An' laughin' at that "melted" ce-ment block
As if he'd die! I gess he's laughin' yet!
—Written for "Brick" by J. MacDonald.

### THE ONE FAULTY ITEM.

The committee of experts appointed to examine Chicago's new City Hall building, following the charges of graft and skimping that has been made, has just turned in its report. It is illuminating and interesting. Those charges were made by an ex-employe, probably to "get even" with some one, and perhaps inspired or backed-up by politicians who had some one or some measure to defeat. However, there is no doubting the earnestness, honesty and high standing of the experts who investigated the charges and the building.

These gentlemen find that there were superintendents, inspectors, overseers and foremen enough, employed by the city, by the architects (men at the very head of their professions) and by the contractors to have everything absolutely well done. The design, the steel, the stone, the fireproofing tile, all those details, could not be improved upon. Only one fault of any importance was found, the cementing, the concrete that was to be poured in between the steel columns and their terra cotta tile protection had been skimped, the columns were not thoroughly covered with good concrete.

In all that great building that was the one structural detail that had been slighted, and an important one, and that in spite of the splendid superintendence and inspection to which the building had been subjected! Which simply goes to support the contention of some of our best builders, that it is next to impossible to secure perfect concrete work. It is the one item that can easily be skimped, and is almost invariably skimped. At its very best its behavior is always problematic and when skimped or "scamp-ed" it is extremely hazardous. It is the cheapest form of construction only when cheaply, poorly done. And cheap concrete accounts for the collapses and building catastrophes that have become so very common. As a result of these building troubles and this last investigation it would seem a wise policy indeed to leave something that is so hard to get right strictly alone or at least, out of important places in important buildings. If they ran poor concrete or didn't put it where it was intended in a building so thoroughly inspected as was the City Hall, imagine how concrete is used in the great majority of buildings where the only moral check is the very occasional and too often merely perfunctory visit of a city building inspector.

### YELLOW PERIL IN CLAY BUSINESS.

Brick and clay goods produced by cheap labor in China are offered in San Francisco in competition with American products. With the exclusion of Chinese coolie labor, a new problem has arisen by the appearance of the products of such labor, seeking admission to the American market. If the experiment succeeds an invasion of the entire coast from Seattle to San Diego may be expected.

A representative of the Chinese Co., one of the strongest industrial concerns in China, has been sent to this country to work up trade in all its lines, including coal, coke, cement, brick and tile. The company has extended its production far in excess of home demands and it looks to the United States to take its surplus. The capacity of its mines is 1,937,200 tons of coal per year with 9,000,000 in sight, its estimated total resources being 30,000,000 tons.

A large cargo of goods has been landed in San Francisco which will be used for the initial test of the American market. The Germans in Shantung and the Japanese in Manchuria are also contemplating some projects along these lines and will make formidable competitors for American producers on account of the exceptionally low price paid for labor.

### FIRE AT MASON CITY.

We are informed by Mr. F. E. Keeler, vice-president of the Mason City Ia., Brick & Tile Co., that they suffered a heavy fire loss at their "old plant" on the night of Dec. 29th, the loss being upwards of $20,000. The fire destroyed the boiler and engine rooms, machine room and store rooms, damaging most of the machinery seriously. Fifty men were put to work promptly to clear up the wreck and with the usual enterprise of this concern, rebuilding has already commenced and it is expected that the plant will again be in operation within 60 days. The company have a considerable stock of tile on hand and with the other three factories in full operation, they will be able to take care of all orders.

### COLLAPSE OF SCHOOL BUILDING.

A section of the roof of the new school building under construction at Carroll, O., fell, entailing a loss of about $1,000. The workmen were removing the supports from the section of the concrete roof when it fell, injuring two of the workmen. It is high time that a law should be passed prohibiting the use of such treacherous material for school buildings where our children are forced to spend a large part of their time. Besides being unsafe, such buildings gather dampness and are unhealthful.

## WISCONSIN CLAY MANUFACTURERS' CONVENTION.

The eleventh annual convention of the Wisconsin Clay Manufacturers' Association will be held in Milwaukee, Feb. 1st, 2d, and 3d, 1911, at the St. Charles Hotel. A special effort is being made to get the attendance of all the brick and tile manufacturers in the state at this meeting.

A strong program has already been prepared and very interesting and important subjects are up for discussion. Prof. Ross C. Purdy of Ohio University will give two comprehensive discussions on the drying and burning of clay products, and on the testing of clays. The work of Prof. Purdy is well known and the Association is assured of valuable and interesting papers from him.

A matter of special importance this year is the subject of railway rates on brick. Much progress has already been made by the committee on railway rates and an interesting report will be made. A representative of the railroads, a specialist on freight rates, has been invited to address the convention, and all shippers of brick should be present to hear the discussion. A plan for advertising clay products will be presented, and also some matters of legislative interest.

A special feature of the convention this year is the brick and tile exhibit. All members are expected to bring samples of their products, and appropriate space will be provided for their display. This is a matter of much importance, and in order to make a creditable showing every member should co-operate and bring samples.

Those who are members of the Association and attend the annual conventions fully appreciate the value of the meetings. Those who are not members are urged to attend, join the Association and take part in the deliberations. The machinery and trade journal fraternity will be present, and there will be ample time for attending to the business, educational, and social features.

A banquet will be held and special entertainment provided on the evening of February 2d.

The final program will be issued about Jan. 20th; in the meantime lay your plans for attending the meeting, Feb. 1st, 2d, and 3d, 1911.

## WASHINGTON STATE CLAYWORKERS' CONVENTION.

The date for the Washington State Convention of the Clay Workers Association has been set for January 26, 27 and 28, 1911, at Seattle. Already the program committee, consisting of Messrs. Power, Farnham and Moore, have arranged a tentative program, and everything points to a most interesting and profitable convention. Messrs. Houlahan, Megrath, Harper, Ridge and Gibson are the committee on arrangements. Clayworkers from the entire Pacific Northwest are invited with every assurance that their every comfort will be provided for. Matters of interest and profit to all will be discussed.

## DISASTROUS FIRE.

A fire in the drier of the Guth's Station, Pa., paving brick plant caused a property loss of $6,000 to $8,000. The plant is operated by the Combustion Utilities Co., of New York, which leased it from the Allentown Paving Brick Co. The company is over-run with orders which makes the loss of the kiln a serious calamity. The industry is one of the most valuable in that section of the country. A new drier will be built immediately.

## A BRICK THAT FLOATS!

In building cold storage warehouses, some parts of breweries, chemical laboratories, and many other buildings where a low temperature must be maintained or where absolute freedom from dampness is necessary, the walls have to be insulated, and while the ordinary materials, brick, stone or concrete are used for structural purposes, there has also to be a lining of cork, hair, felt, flax-fibre, charcoal, saw-dust or other such more or less imperfect insulation. Most of these materials disintegrate, rot, become foul and last but a little while.

The National Fireproofing Co. has long experimented with insulation and has just put upon the market an insulating lining-brick, that is next to perfect if not the ideally perfect material we have all been hoping for. It is a brick to all intents, but one so waterproofed and burned that 45% of the volume is confined air and its specific gravity is 0.90 and its ultimate strength in compression 750 lbs. per square inch. It floats, it absorbs no moisture, it is everlasting, can be used and put into the wall in the one operation of building, for it can carry a very considerable load. It is a notable and long needed contribution to the building art. The National Co. calls it terra cotta cork or insulating building blocks.

## PROSPEROUS CALIFORNIA PLANT.

The McNear Brick Co. is situated on the San Francisco Bay, and all its products are handled by the McNear Transportation Co., operating barges. The company guarantees to load the lumber steamers with 300,000 brick in one day, giving them quick dispatch on a freight commodity that must be handled cheap and fast. The selling end is handled by the McNear Brick Agency, and by making contracts with the builders to deliver lime, cement, sand and brick on the job, has opened up an avenue of profit which enables it to reduce the selling cost of brick to a minimum. The company is constantly enlarging its plant and by careful organization and co-operation between the manufacturing, transportation and selling departments has been able to keep up with the times and sell brick at one price the year round. The plant has operated throughout the year, turning out about 1,600,000 per month, winter and summer, and no large surplus has been accumulated. The agency operates a large yard on the San Francisco waterfront, where deliveries are handled, and in addition an extensive business is done with building material companies on the bay and rivers at some distance from this city.

## LANDS BIG CONTRACTS.

The Finkle Brick Co., of Marshalltown, Ia., has secured the contract to furnish the brick for the new building at the Iowa State Industrial School. The Finkle Co. have had numerous large orders and the business of the firm has materially increased until it has become one of the leading manufacturing institutions in the state.

## NEW BRICK PLANT.

The Diamond City Brick Co., Wilkes-Barre, Pa., located near the Pennsylvania R. R., has opened its plant for public inspection. The capacity will be 60,000 common brick per day which are to be made of first class quality.

The officers of the Company are as follows:—President, Wm. Amesbury; Vice-Pres., P. H. Kehoe; Secy. and Treas., D. H. Evans; Directors:—Wm. Amesbury, D. H. Evans, Jacob Smith, Building Inspector, Held, John James, Arthur Root and Gus. Lanning. Mr. Root is the manager of the plant.

## THE PLANT OF THE BARR CLAY CO.

Two and one-half miles south of Streator, Illinois, is located the plant of the Barr Clay Co. This company is one of the largest manufacturers of paving and building brick in the state. The yearly capacity is 50,000,000 and three hundred and twenty-five operatives are kept busy throughout the year. The company is capitalized at $600,000.00, and has equipped its factory with every modern improvement. The power house contains one 1,000 H. P. Hamilton-Corliss engine and four 1,000 H. P. boilers.

Coal is used for fuel, both for power and burning the brick. Forty round down-draft kilns are used for burning the goods, which are manufactured by the stiff mud method, the American & Chambers machines being used. Other machinery was supplied by the Frost & Bonnott companies.

Both waste heat and steam are used in the drying process.

The company has a big line of satisfied customers which testifies to the popularity of the brick produced by this company.

Mr. C. C. Barr is manager and C. A. Miller is superintendent of the plant.

Plant of Barr Clay Co., Streator, Ill.

## OUTLOOK GOOD.

Frank F. Holzinger, a manufacturer of common building brick at Huntington, Ind., reports that the outlook for next year looks very bright and he contemplates putting in a steam pipe rack drier and cable system during the winter, so as to be ready for the big business which he thinks is coming in the spring.

Mr. Holzinger not only owns this soft-mud plant, which has a capacity of about 600,000 brick per year, but also owns one-half interest in the Huntington Brick Co., which produces about half a million brick annually.

## CONCRETE BLOCKS IN MONTANA.

Mr. McKay, manager of the new plant of the Glasgow Brick Co., Glasgow, Mont., makes about 1,000,000 brick per year. He uses three machines and makes a soft-mud, sand-mold brick. He has had the shale tested and finds that it will make a fine press brick and expects to put in machinery for making them next year. Owing to the high price of lumber there is a good demand for clay goods in Montana. He reports that concrete blocks are not a success.

## THE NEW BRAZIL PLANT.

We have heretofore mentioned the organization of the Ayer-McCarel-Reagan Clay Co., Brazil, Ind., and their purchase of clay lands at Carbon, near Brazil, and utilization of the facilities at that place. A more detailed description of the equipment at this time would, therefore, be interesting.

The property is located on 80 acres of fine clay and coal land, and the equipment is housed in a 2-story building, 80x120 ft., with an engine house adjoining. On the property is valuable block coal and both clay and shale. The surface clay is also available. The material is hoisted by drum and wire rope over a tramway to the plant.

The machinery equipment includes a large sized Bonnot combined machine. No additional pugmill or disintegrator is required, the only previous preparation being the use of a Bonnot piano wire screen. The drier cars and transfer cars were furnished by the Bonnot Co., part of the drier cars also being furnished by the Crawford & McCrimmon Co., Brazil, Ind.

Drying is done in a 16-track National dry kiln in which steam heat exhaust is used, the fan being furnished by the Crawford & McCrimmon Co.

At present the kiln battery consists of six down-draft kilns, designed by members of the company, and more will be built as fast as needed. They are 30 ft. in dimensions and bituminous coal is used for burning.

The power equipment consists of two 100 h.p. tubular boilers and one 250 h.p. Ball automatic engine.

Electricity furnished by the Brazil Central Station is also used at the plant, particularly to drive the pump and hoist at the clay bank.

The product of the company at present is drain tile, although in the near future the manufacture of clay conduits will be commenced. Messrs. Ayer and McCarel have made a specialty of this class of product and have perfected and standardized what is known as the McRoy multiple duct conduit. D. E. Reagan, president of the company, built the plant at Brazil now owned by the Hydraulic Press Brick Co.; and Messrs. Ayer and McCarel built the plant at Brazil now known as the McRoy plant.

The buildings on the present property were formerly used for a clayworking plant, but have been rehabilitated and improved; the present plant has a capacity of two to three carloads per day, and its size and capacity will probably be increased in the near future.

## WHISLER BRICK CO. USES DYNALITE.

While using dynamite in their fire clay mines, two men were killed at the brick plant of the Douglass-Whisler Co., of Beaver Falls, Pa., works at Eastvale, but since the firm commenced to use dynalite as an explosive, there has not been the semblance of an accident, neither has the firm lost the time it formerly did after a shot was set off.

This plant, the largest of its kind in the Beaver Valley, has been working steadily since its organization in 1902, operations continuing twelve months in the year. It is located on the "low grade" of the Erie & Ashtabula division of the Pennslyvania railroad. While the plant proper occupies about seven acres of ground, there is clay found under 125 acres. There are four veins, three of which are being worked continuously.

The boiler house, engine house and manufacturing plants are formed in an "L" shape. The clay is of excellent quality. While fire clay products are made, yet considerable shale is taken from the surface or hillside. There is some silica found in the fire clay. From 12 to 14 ft. of clay is taken out in each vein, a Jeffreys electric augur drill being used for this purpose.

Mules are used in hauling the clay from the drifts, the cars being of the firm's own manufacture. Although the clay is weathered to a certain extent, yet a considerable amount of it is put through the pans as soon as it comes to the surface.

Eight-foot Phillips-McClaren dry pans are used here. One Blake crusher, 24x9 is used in the pans. There are two Dunlap screens. A small amount of water is used in working the E. M. Freese pug mill, the latter being of a vertical type. A Horton soft mud machine is also used, five men being eployed at this stage.

The belt-bucket elevators are made by the firm. Ceramic Engineering Co., cars of Cleveland and Kopple cars are used entirely. There are 141 cars for holding wire cut brick, there being 480 brick placed on these cars, while 270 brick are on the soft mud cars.

In the Pittsburg drier there are 14 tunnels of 120-ft. in length, having a capacity of 15 cars each. The tunnels are heated by hot air, coal being used for fuel, and the cars remain in the tunnels for 24 hours. The plant has thirteen kilns, it having grown to this capacity from four kilns. There are two 32-ft. kilns; eight 30-ft. kilns; two square kilns and one small or test kiln. Coal is used for water smoking and also kiln burning. Kilns are of the solid floor type.

The power plant consists of one 200 h. p. Russell engine and one 30 h. p. engine, which is used to operate the electric machinery. There are three Gem City boilers 80 h. p. each. Fire brick and building brick form the exclusive products of the company.

Officers of the Douglass-Whisler Co., are—President, Alexander Dempster, Pittsburg, Pa.; secretary, Gilbert Zirkle, Pittsburg, Pa.; treasurer, W. H. R. Gass; general manager, C. C. Hazen, New Brighton, Pa.; general superintendent, Arthur Douglass.

"We are more than pleased with the use of dynalite as an explosive," declared Mr. Douglass to a representative of "Brick." "We can get out 130 tons of clay a day by the use of this new explosive. We find this explosive perfectly harmless. It cannot be exploded by blaze alone, neither can it be set off by concussion alone. But blaze and concussion together produces results. We can go into the room immediately after the shot has been fired and start to work. With the use of dynamite we could not do this, having to wait until the smoke and fumes of the old explosive had expired. There is absolutely no danger attached to the use of dynalite, it produces excellent results, and we will continue to use it as long as it is made."

In an interview with Mr. C. C. Hagen, the manager, he makes the following statements: "We have used one and one-half tons of dynalite furnished us by the American Dynalite Co., of Elyria, Ohio. We use it because it is safe, does not require as much to do the same work as dynamite, does not require thawing as it does not freeze. Miners can enter rooms immediately after explosion, as there are no fumes, smoke or headache in connection. We expect to use it right along in mining fire clay for our use in the manufacture of fire brick and building brick."

## BUSINESS REPORTED GOOD.

The firm of J. C. Steele & Son, Statesville, N. C., prominent throughout the southern states as manufacturers of brick machinery and equipment, report they are very well pleased with their business for the past year and that the outlook for the future in the brick business and machinery business in the south is most encouraging. The company have, during the past year, erected and perfected a complete brick plant for demonstrating purposes and they cordially invite brick makers of the country to visit them and to allow them to show the merits of Steele machinery in actual operation. The company has already received some very satisfactory orders for machinery for installation in 1911.

## WILL ATTEND CONVENTIONS.

The Sawyer Belting Co., Cleveland, O., have made their product very familiar to the clay products industry and are in very close touch with the manufacturers of brick and tile throughout the country. For the purpose of becoming better acquainted than ever, the Sawyer people will be fully represented at the several conventions this year, including the Middle West Clay convention at Chicago and the Iowa State convention at Boone, as well as the N. B. M. A. convention at Louisville. The company will be represented by Mr. H. L. Taite, sales manager; Mr. W. Reece, special representative, and Mr. E. F. Deckert, assistant sales manager.

## NEW HAIGH CONTINUOUS KILN.

The H. Haigh Kiln Co. is constructing a kiln for the National Fire Proofing Co. at their Hamilton, Ont., plant. This is the fourth continuous kiln which the Haigh people have put in for this company.

## MURRAY IRON WORKS INSTALLATION.

The Fairmont (Minn.) Brick & Tile Co. has installed a 300 H.P. Murray Corliss engine, two 150 H.P. Murray high pressure horizontal tubular boilers, and one 300 H.P. open heater with pumps, piping and transmission machinery.

## ATTRACTIVE CALENDARS.

The Jas. W. Hensley Co., well known soft-mud machinery men of Indianapolis, Ind., have an eye to beauty as indicated by the calendar they have issued. A thoroughbred girl, horse and dog make a striking combination not to be overlooked.

A splendid view of the works of The Marion (O.) Steam Shovel Co. is the attractive feature on a calendar, which is notable for the clear bold type in which the dates are printed.

# The Behavior of Fire Bricks in Furnaces Under Load Conditions*

By A. V. Bleininger and G. H. Brown.

All fire bricks are in use subjected to load conditions, no matter in what part of a furnace they may be located. While these loads may be slight and would be insignificant as far as the strength of the bricks in the cold condition is concerned they become an important factor at elevated temperatures. Thus, while a fire brick may show a compression strength of 2,500-3,000 pounds per sq, inch at the atmospheric temperature, it will possess but a small part of this strength at a temperature of, say 1300°C. (2372°F.). Nor is greater strength necessary at this temperature which is met with only under furnace conditions. A good fire brick has ample strength for all the requirements imposed upon it and it is only the inferior products which will be affected.

Hence it should prove to be a profitable task to examine into the behavior of fire bricks when subjected to load conditions in a furnace and to observe what kinds of material show up the best.

The decrease in resistance to deformation is evidently due to the gradual softening of the clay, due to vitrification and incipient fusion. This viscous state becomes more and more pronounced as the temperature rises, until the point is reached where the material can no longer support its own weight. As we know, the vitrification of clays and their subsequent fusion at temperatures considerably below the softening temperature of pure clay is caused by the presence of fluxes, i. e., potash, soda, lime, magnesia and iron oxide and by an excess of silica. Pure clay containing about 39 per cent of alumina and 47 per cent of silica, in the raw state, is the most refractory kind. Any increase in silica will at once lower the refractoriness as will the presence of even small amounts of fluxes.

In this connection the fact might be brought out, that clays have no definite melting point. The phenomena of fusion are by no means confined to temperatures close to the so-called melting or softening point but manifest themselves as early as several hundred degrees below the stage of fusion as usually accepted.

In fact, we can say that clays and clay mixtures do not possess a definite melting point. In testing a specimen of fire clay or of fire brick, fusion is said to have taken place when the test pyramid or specimen has softened sufficiently so that its edges are rounded, and it has bent over in the well known manner. As a matter of fact, for all practical purposes, a fire brick would have been completely distorted, and would have shown all signs of fusion at considerably lower temperatures owing to its inability to support its own weight. It is simply due to the viscosity of the mass and to the fact that no load is imposed upon it, that it does not show the distortion coincident with softening. It is evident, therefore, that the determination of the so-called melting point of a clay or fire brick, though useful in differentiating between low and high grade materials, does not offer a reliable means of expressing the entire refractory behavior.

In order to overcome the viscosity effect of the partially fused mass, it evidently seems desirable to bring about conditions which will neutralize it. For this reason it was decided to carry on some test with full size firebrick in which the latter would be subjected both to the action of heat and of pressure. This work was carried on in the laboratories of the former Technologic Branch of the U. S. Geological Survey, now the Clay Products Laboratories of the Bureau of Standards, at Pittsburg.

For this purpose a furnace was constructed in which the behavior of the brick could be observed under varying conditions of temperature and pressure. After a considerable number of experiments, it was decided to test a number of well known brands of firebrick at a temperature of 1300°C (2372°F) and a load of 75 lbs. per sq. inch. This temperature is an average temperature found in the ordinary boiler furnace or kiln fire-box and certainly cannot be accused of being excessive. Many industrial working temperatures exceed this heat by a decided margin. The pressure of 75 lbs. per sq. in. also is not great since many fire brick show crushing strength up to three and four thousand pounds per square inch, in the cold condition.

In a second series of experiments the temperature was raised to 1350°C. and the load reduced to 50 lbs. per sq. inch. The present paper, however, refers to the results of the 1300° and 75 pound tests.

Since it was thought advisable to use full size bricks, a furnace was constructed as illustrated in Fig. 1, with an interior space of 20"x20"x21", heated by means of eight Fletcher burners, which were supplied with natural gas and compressed air. The combustion gases escape through holes along the back side of the furnace, which consists of a movable door made from a heavy wrought-iron frame lined with fire brick. This frame is hung from two rollers running on an overhead track, so that is can be easily moved. The brick to be tested is firmly placed on end upon a heavy fire clay block about 9 ins. from the door, and made to set plumb by means of fire clay mortar. The half of a chrome brick is then placed upon the test specimen and on top of it a long cylinder, made from high grade fire clay which extends through a hole in the arch of the furnace. The load is then applied upon a cast iron knife-edge plate by means of a steel I-beam 9 ft. long, with a distance of three feet between the pin taking the up-thrust and the fulcrum, and six feet between the latter and the point of load application. The weight of the beam is 155 pounds. The weight applied consists of a wooden box containing the necessary amount of iron shot. The beam was first calibrated by means of a platform scale. The pin at the one end of the beam passes through a cast-iron block sliding in a channel iron provided with a slit and a heavy fastening bolt. On top of the block two bolts are arranged so that it can be lowered by loosening the fastening bolt and tightening up the top nuts. In this manner the I-beam may be kept level throughout the test, thus avoiding any side strains upon the brick.

Through an opening in the door a thermo couple is inserted, which is placed as close to the brick as possible. The junctions of the element are placed in test-tubes immersed in a beaker of water, the temperature of which is read regularly.

The rate at which the brick was heated up was fixed after some preliminary experiments and is shown in Fig. 2. From this curve it is seen that the test consumed almost 340 minutes. During the last hour of the test the temperature was kept constantly at 1300° C.

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*Adapted and revised by Mr. Bleininger from paper in transactions of American Ceramic Society.

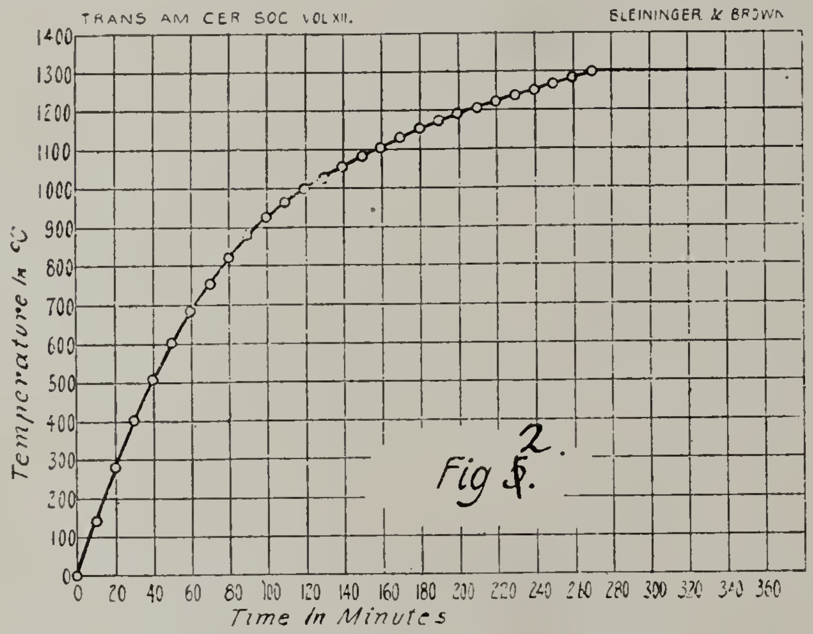


Fig. 25. Curve Showing Rate of Heating.

In addition to the load tests the following determinations were made:

1. Crushing strength of the brick on end in the cold condition.
2. Chemical analysis.
3. Softening temperature.
4. Porosity.
5. True specific gravity.
6. Decrease in water absorption on re-burning to cone 12.

1. The crushing strength of the brick, placed in the machine endwise, was carried on in the usual way, pains having been taken to imbed the specimen in plaster.

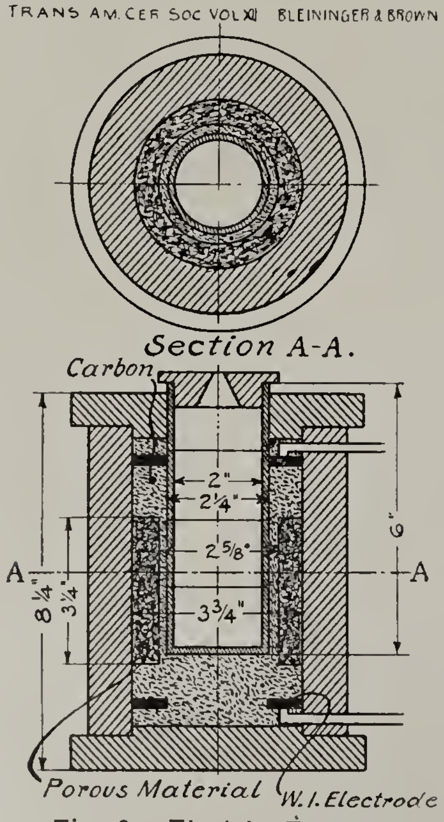


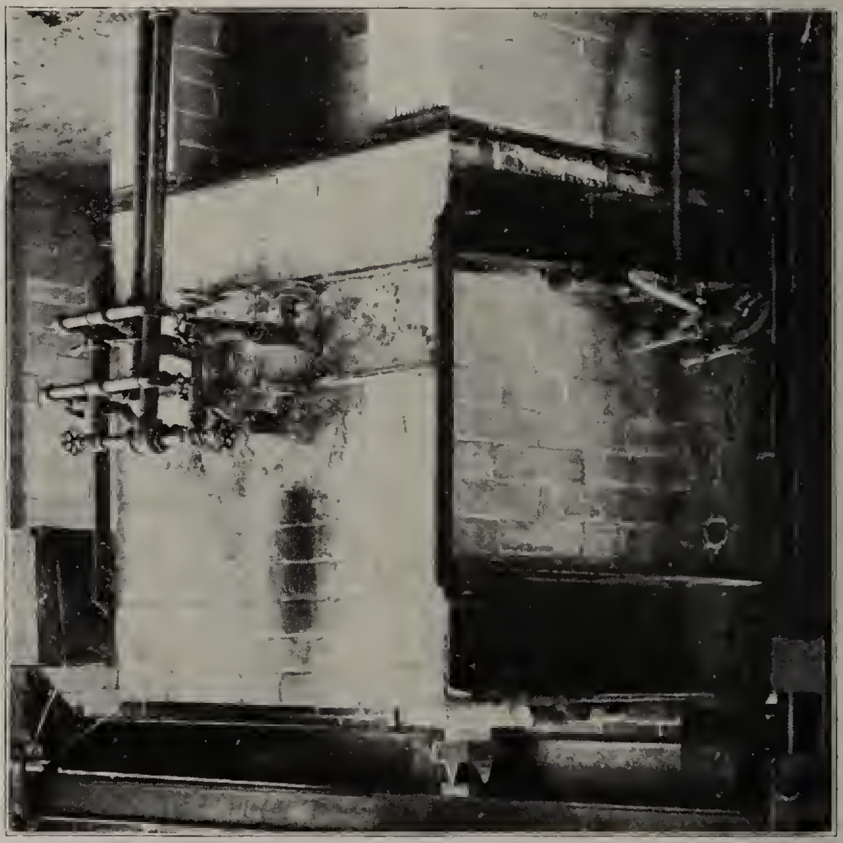
Fig. 3. Electric Furnace.

2. For the purpose of the chemical analysis, a sample sufficiently large was obtained by breaking up two half brick and crushing them to pass the 100 mesh sieve. The disintegrated sample was allowed to flow in a small stream over a powerful magnet until all of the particles of metallic iron were removed. The analysis was carried on under the supervision of Mr. P. H. Bates, chemist in charge of the structural materials chemical laboratory, assisted by Mr. A. J. Phillips. The methods advocated by Hillebrand were used throughout this work.

3. The softening temperature was obtained by chipping off specimens from the bricks and placing them in a Fletcher gas furnace, using preheated compressed air and natural gas. For the higher temperatures a small carbon resistance furnace was employed in which the muffle consisted of a body containing 85% calcined alumina and 15% of kaolin, Fig. 3. This furnace was found very satisfactory for the purpose. Seger-Orton cones were used for the determination of the temperatures. The results were checked in each case.

4. The porosity was determined by obtaining the weight of a dry piece of the brick, the weight of the same specimen saturated with water by boiling in vacuo and the suspended weight. The results checked practically with the porosity, calculated from the true and apparent specific gravities.

5. The true specific gravity was obtained from 50 gram samples of the pulverized brick, under the customary precautions as to the removal of air by boiling in vacuo and making corrections for the final temperature of the water.



View of Testing Furnace.

6. The original weighed brick in this case were tested for water absorption by placing them flatwise in a covered tank, containing 1½ inch of water, for 48 hrs. After weighing they were dried and burnt in a down-draft test kiln to cone 12. They were then again immersed as before, and the water absorption determined.

In this work 26 brands of fire brick were tested, and each manufacturer was requested to furnish 20 brick.

The writers desire to take this opportunity for thanking the various companies for their co-operation, and the interest taken in this work.

### Results of Tests.

In Table 1 the chemical analyses, as well as the calculated empirical formula, are compiled.

The results of the physical tests are arranged in Table II, and the data referring to the load test, as has been said above, apply to the load of 75 pounds per square inch and the temperature of 1300°C.

In the table of chemical analyses it will be observed that several columns of figures are given under the heading "Equivalents." By this is meant simply the molecular amounts of each constituent, calculated in such a way that the analyses become comparable which they are not if expressed simply in percentages. Without going into the reasons why, the modus operandi of the caculation is as follows:

TABLE I.

Chemical Analyses. EQUIVALENTS.

| No. | % Silica | Alumina | Titanium Oxide | Ferric Oxide | Lime | Magnesia | Potash | Soda | $SiO_2$ | $Al_2O_3$ | $TiO_2$ | FeO | CaO | MgO | $K_2O$ | $Na_2O$ | RO* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81.60 | 14.55 | 0.49 | 1.15 | 0.37 | 0.27 | 1.08 | 0.67 | 9.510 | 1.0 | 0.042 | 0.098 | 0.046 | 0.047 | 0.079 | 0.074 | 0.344 |
| 2 | 79.20 | 17.42 | 0.49 | 1.19 | 0.21 | 0.38 | 0.91 | 0.37 | 7.732 | 1.0 | 0.036 | 0.087 | 0.022 | 0.056 | 0.057 | 0.035 | 0.257 |
| 3 | 77.02 | 18.35 | 0.52 | 1.32 | 0.48 | 0.28 | 1.49 | 0.67 | 7.140 | 1.0 | 0.036 | 0.092 | 0.037 | 0.038 | 0.088 | 0.060 | 0.315 |
| 4 | 54.58 | 37.35 | 1.57 | 4.10 | 0.54 | 0.53 | 1.02 | 0.42 | 2.485 | 1.0 | 0.054 | 0.140 | 0.026 | 0.036 | 0.030 | 0.019 | 0.251 |
| 5 | 54.70 | 39.72 | 1.86 | 1.32 | 0.29 | 0.52 | 1.07 | 0.64 | 2.343 | 1.0 | 0.057 | 0.042 | 0.013 | 0.033 | 0.043 | 0.038 | 0.169 |
| 6 | 54.69 | 38.86 | 1.92 | 1.41 | 0.35 | 0.52 | 1.57 | 0.91 | 2.386 | 1.0 | 0.064 | 0.046 | 0.016 | 0.034 | 0.044 | 0.038 | 0.178 |
| 7 | 54.25 | 38.90 | 1.92 | 1.83 | 0.41 | 0.78 | 1.26 | 0.78 | 2.365 | 1.0 | 0.064 | 0.060 | 0.019 | 0.051 | 0.035 | 0.033 | 0.198 |
| 8 | 52.30 | 41.52 | 2.46 | 1.28 | 1.02 | 0.45 | 0.94 | 0.28 | 2.142 | 1.0 | 0.075 | 0.039 | 0.045 | 0.028 | 0.025 | 0.011 | 0.148 |
| 9 | 63.89 | 29.28 | 2.40 | 2.05 | 0.27 | 0.29 | 1.71 | 0.40 | 3.710 | 1.0 | 0.105 | 0.089 | 0.017 | 0.025 | 0.063 | 0.022 | 0.216 |
| 10 | 60.37 | 34.83 | 2.05 | 1.37 | 0.39 | 0.31 | 0.67 | 0.20 | 2.947 | 1.0 | 0.075 | 0.050 | 0.020 | 0.023 | 0.021 | 0.009 | 0.123 |
| 11 | 61.35 | 32.65 | 1.98 | 2.15 | 0.46 | 0.50 | 0.86 | 0.17 | 3.196 | 1.0 | 0.077 | 0.064 | 0.026 | 0.039 | 0.029 | 0.009 | 0.167 |
| 12 | 55.66 | 36.52 | 2.40 | 2.59 | 0.49 | 0.61 | 1.73 | 0.18 | 2.591 | 1.0 | 0.085 | 0.090 | 0.024 | 0.043 | 0.051 | 0.008 | 0.216 |
| 13 | 68.73 | 25.12 | 1.32 | 2.26 | 0.36 | 0.49 | 1.62 | 0.25 | 4.651 | 1.0 | 0.067 | 0.115 | 0.026 | 0.050 | 0.070 | 0.002 | 0.263 |
| 14 | 60.77 | 32.63 | 1.94 | 2.89 | 1.12 | 0.26 | 0.46 | 0.26 | 3.168 | 1.0 | 0.076 | 0.113 | 0.063 | 0.020 | 0.015 | 0.013 | 0.224 |
| 15 | 56.55 | 36.64 | 1.90 | 2.84 | 1.34 | 0.22 | 0.43 | 0.32 | 2.634 | 1.0 | 0.066 | 0.099 | 0.067 | 0.015 | 0.013 | 0.014 | 0.208 |
| 16 | 50.76 | 44.24 | 2.03 | 1.45 | 0.33 | 0.29 | 0.60 | 0.34 | 1.952 | 1.0 | 0.059 | 0.042 | 0.014 | 0.017 | 0.015 | 0.013 | 0.101 |
| 17 | 62.14 | 32.29 | 1.42 | 2.65 | 0.71 | 0.50 | 0.38 | 0.13 | 3.294 | 1.0 | 0.051 | 0.104 | 0.040 | 0.039 | 0.013 | 0.007 | 0.203 |
| 18 | 62.74 | 31.80 | 1.53 | 2.45 | 0.75 | 0.56 | 0.18 | 0.18 | 3.354 | 1.0 | 0.061 | 0.100 | 0.043 | 0.037 | 0.006 | 0.009 | 0.195 |
| 19 | 35.46 | 57.98 | 2.70 | 1.40 | 0.29 | 0.29 | 1.30 | 0.75 | 1.040 | 1.0 | 0.059 | 0.031 | 0.009 | 0.013 | 0.014 | 0.021 | 0.088 |
| 20 | 52.89 | 43.41 | 2.12 | 0.90 | 0.16 | 0.13 | 0.27 | 0.36 | 2.072 | 1.0 | 0.062 | 0.003 | 0.004 | 0.076 | 0.007 | 0.016 | 0.106 |
| 21 | 65.41 | 29.50 | 1.38 | 2.75 | 0.45 | 0.25 | 0.34 | 0.10 | 3.770 | 1.0 | 0.060 | 0.119 | 0.003 | 0.022 | 0.013 | 0.006 | 0.163 |
| 22 | 66.53 | 28.66 | 1.36 | 2.35 | 0.58 | 0.42 | 0.19 | 0.28 | 3.930 | 1.0 | 0.060 | 0.104 | 0.037 | 0.037 | 0.007 | 0.016 | 0.201 |
| 23 | 66.28 | 29.12 | 1.79 | 1.55 | 0.59 | 0.23 | 0.30 | 0.27 | 3.871 | 1.0 | 0.078 | 0.069 | 0.037 | 0.020 | 0.011 | 0.015 | 0.152 |
| 24 | 77.82 | 19.00 | 1.65 | 1.01 | 0.22 | 0.06 | 0.28 | 0.10 | 6.953 | 1.0 | 0.111 | 0.068 | 0.021 | 0.008 | 0.016 | 0.009 | 0.122 |
| 25 | 56.62 | 39.19 | 1.69 | 1.95 | 0.36 | 0.08 | 0.19 | 0.18 | 2.548 | 1.0 | 0.055 | 0.063 | 0.019 | 0.005 | 0.005 | 0.008 | 0.100 |
| 26 | 54.51 | 40.42 | 2.46 | 1.90 | 0.35 | 0.17 | 0.20 | 0.16 | 2.293 | 1.0 | 0.028 | 0.060 | 0.016 | 0.011 | 0.005 | 0.007 | 0.099 |

*RO = $K_2O+Na_2O+CaO+MgO+FeO$.

TABLE II.

Physical Tests.

| No. | Crushing strength, cold, lbs. per sq. in. Brick on end. | % Porosity. | True Specific Gravity. | Softening Temp. in Cones. | Height of brick before load test. Inches. | Height of brick in inches after load test. | Temp. at which deflection started. °C. | Compression of brick in inches. | % Water absorption of brick in terms of dry wt. | % Water absorption of brick in terms of dry wt. after reburning to cone 12. | Decrease in water absorption on reburning. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1464 | 30.2 | 2.591 | 28 | 9 | Crushed | 1213 | Crushed | 12.89 | 12.00 | 0.89 |
| 2 | 1289 | 30.1 | 2.592 | 28 | 9 | Crushed | 1247 | Crushed | 12.90 | 10.12 | 2.78 |
| 3 | 989 | 32.4 | 2.656 | 28 | 8⅞ | Distorted | 1210 | Badly Distorted | 11.47 | 5.53 | 5.94 |
| 4 | 495 | 25.8 | 2.737 | 29 | 9 | Crushed | 1180 | Crushed | 9.97 | 7.55 | 2.42 |
| 5 | 1160 | 23.0 | 2.670 | 31½ | 8⅞ | 8⅛ | 1191 | ¾ | 10.31 | 7.53 | 2.78 |
| 6 | 931 | 22.9 | 2.632 | 31 | 9 | 8¼ | 1213 | ¾ | 8.75 | 7.22 | 1.53 |
| 7 | 674 | 20.7 | 2.671 | 31 | 9 | 7¾ | 1215 | 1¼ | 7.35 | 4.46 | 2.89 |
| 8 | 1082 | 17.1 | 2.640 | 34 | 8¾ | 8⅜ | 1082 | ⅜ | 13.18 | 8.57 | 4.61 |
| 9 | 612 | 29.4 | 2.651 | 29½ | 8⅞ | Crushed | 1191 | Crushed | 13.08 | 9.60 | 3.48 |
| 10 | 946 | 27.5 | 2.662 | 33— | 8⅞ | 8½ | 1179 | ⅜ | 11.17 | 8.36 | 2.81 |
| 11 | 480 | 25.1 | 2.669 | 28 | 9 | 7½ | 1133 | 1½ | 9.13 | 4.13 | 5.00 |
| 12 | 2614 | 24.5 | 2.640 | 26 | 9 | Crushed | 1142 | Crushed | 10.49 | 5.00 | 5.49 |
| 13 | 843 | 22.5 | 2.658 | 28½ | 8¾ | Crushed | 1130 | Crushed | 8.55 | 6.55 | 2.00 |
| 14 | 2226 | 25.5 | 2.707 | 31½ | 8⅞ | 8 5/16 | 1211 | 9/16 | 8.88 | 7.39 | 1.49 |
| 15 | 1638 | 23.1 | 2.672 | 32 | 8⅞ | 7⅞ | 1234 | 1 | 10.72 | 8.34 | 2.38 |
| 16 | 971 | 24.3 | 2.678 | 34 | 9 | 8 | 1205 | 1 | 8.82 | 7.23 | 1.59 |
| 17 | 2578 | 23.9 | 2.629 | 31 | 8¾ | 8 1/16 | 1233 | 13/16 | ..... | ..... | .... |
| 18 | 955 | 21.0 | 2.638 | 33— | 8⅞ | 8 3/16 | 1274 | 13/16 | 15.56 | 12.51 | 3.05 |
| 19 | 2071 | 33.3 | 2.991 | 33— | 9⅛ | 8½ | 1235 | ⅝ | 13.98 | 10.84 | 3.14 |
| 20 | 1005 | 26.8 | 2.694 | 31 | 8¾ | 8½ | 1213 | ¼ | 8.59 | 7.68 | 0.91 |
| 21 | 3174 | 22.2 | 2.642 | 32 | 8⅞ | 8 9/16 | 1231 | 5/16 | 11.15 | 10.22 | 0.93 |
| 22 | 2191 | 26.8 | 2.662 | 31 | 8⅞ | 8¼ | 1234 | ⅝ | 9.53 | 8.20 | 1.33 |
| 23 | 4234 | 23.9 | 2.649 | 30 | 8⅞ | 8 5/16 | 1264 | 9/16 | 12.39 | 10.42 | 1.97 |
| 24 | 2551 | 27.5 | 2.600 | 29 | 9 | 8⅞ | 0 | ⅛ | 12.62 | 8.76 | 3.86 |
| 25 | 1241 | 26.3 | 2.695 | 31½ | 9 | 8¾ | 1291 | ¼ | 11.90 | 6.42 | 5.48 |
| 26 | 1138 | 22.3 | 2.685 | 31 | 8⅞ | 7⅝ | 1207 | 1¼ | ..... | ..... | .... |

Divide the per cent of each constituent by its molecular weight. Take the quotient obtained for alumina and divide it into all of the quotients. This will necessarily make the resulting figure for alumina equal to 1. We have now caculated a chemical formula which may be used to show at once just what kind of a fire clay we have to deal with, especially if we add all of the values of the fluxes and express the latter in one figure, which we may call RO.

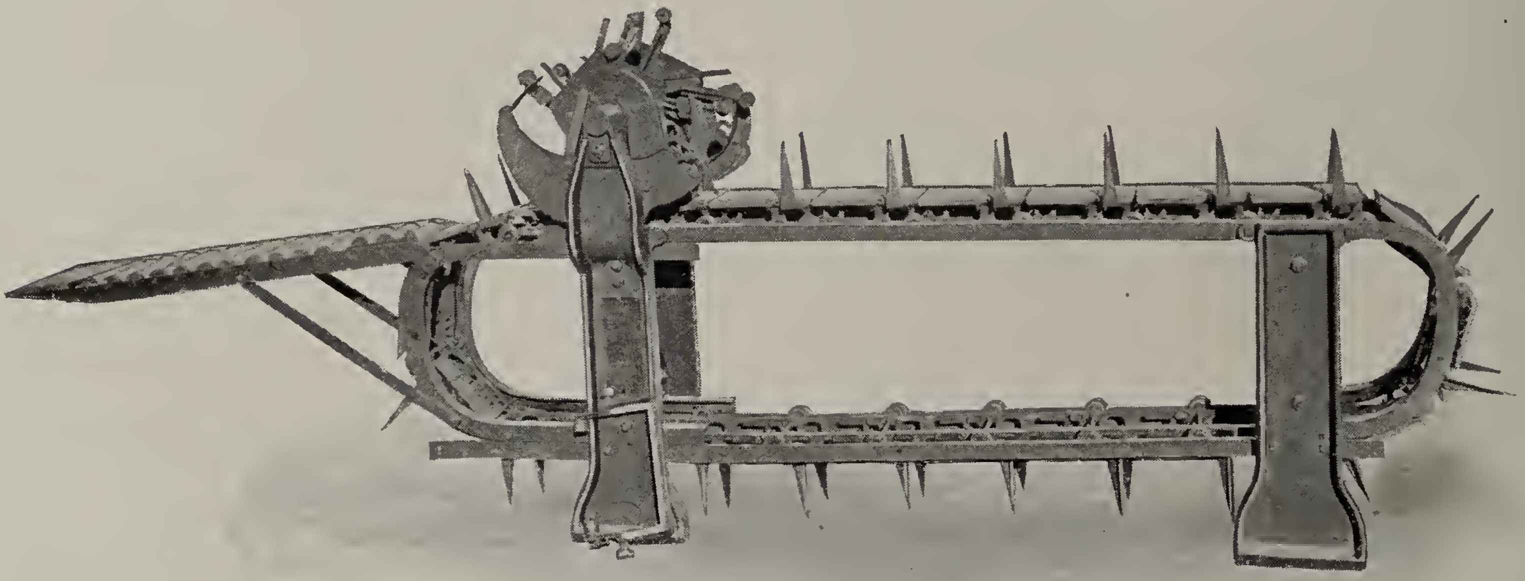
This procedure may be illustrated by taking say, sample No. 1 and caculating its formula. Before doing this we must know the molecular weights of the various constituents which might be gotten from any book on chemistry. For the sake of convenience, however, we shall give them here.

(Continued in next issue.)

## EXTENDING THEIR FIELD.

The Marion Machine Foundry & Supply Co. of Marion, Ind., are well known to the clay industry as manufacturers of the famous Rust clay feeder and mixer, which has been adopted successfully by a number of plants throughout the country. Realizing the growing importance of the clay industry, and feeling that their connection with the trade through the Rust feeder has given them proper introduction in this field, the Marion company have decided to extend their facilities for serving the brick and tile manufacturers and have added to their line the manufacture of cutting tables. This company also produces the Marion flue blower, one of the most useful and economical devices that can be found for reducing the cost and saving troubles in the steam power plant.

The cutting tables manufactured by the Marion company include a full line meeting all requirements of brick and tile manufacturers. The three types to which particular attention is called are the No. 25 Marion Automatic side cutter; the No. 15 automatic end cutter (illustration of which appears herewith) and the No. 35 automatic tile cutter.



Marion Automatic End Cutter.

A more complete technical description of these machines appears elsewhere but it is particularly to be noted that the tile cutter presents new features of special interest which will appeal strongly to the tile manufacturer.

The Marion company have made rapid progress in the perfection of the Rust clay feeder and mixer and have recently brought out a new type of feeder for heavy duty, in which the spirals turn right and left. This new heavy duty feeder and the standard type enable them to offer a full line of these machines suitable to the particular needs of any clay working plant.

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## AN UP-TO-DATE SHOP.

The Stephens-Adamson Mfg. Co., of Aurora, Ill., has recently completed a new steel fabricating shop, which is one of the largest and best equipped shops for its purpose in the country. The building is 80 feet wide by 300 feet long. It is built entirely of steel with galvanized iron roof and sides and roller steel curtain doors. The ventilation is carefully provided for and every facility for aiding and caring for the workmen is provided.

In building this shop the aim has been to erect such a building that the work could always be turned out in the quickest and most efficient manner. The arrangement of machinery provides for the least possible moving back and forth of material and fabrications, and for the most convenient access to all sorts of work by the men. A ten-ton electric traveling crane of eighty foot span provides for the handling of all heavy material. This crane will be used to unload steel from the cars and deposit it in any part of the shop, or to take the fabricated structures and load them directly onto the cars for shipment. For all small work several traveling cranes are provided on each side of the shop. The building was designed by the J. C. Buckbee Co. of Chicago.

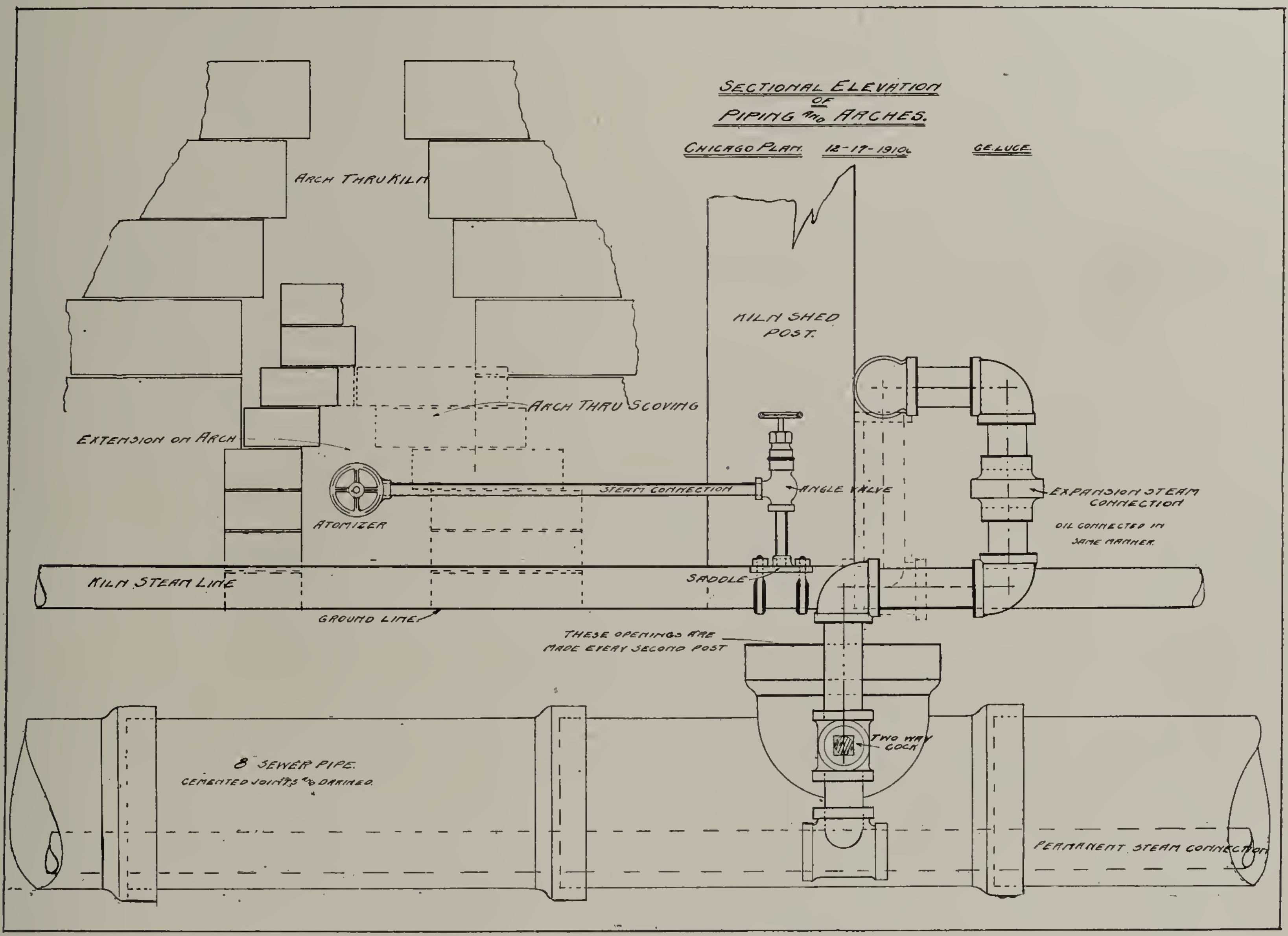
The company's increasing business in steel work has made this addition necessary. They hope, hereafter, to take care of a great deal of such work and to continue to turn out a high grade product in the least time and in the most efficient manner. The old steel shop which was erected three years ago and soon outgrown, will be used as an addition to the present machine shop, which will more than double the capacity. They have been cramped for some time by their large volume of business and this change will greatly relieve matters. More machines will be provided and a better arrangement made possible; the assembling department will be enlarged and the shipping facilities greatly improved. Further improvements have been made in other buildings of the company. The capacity of the power plant has been increased by the addition of a 210-h. p. Sterling boiler. Power is thus provided for additional machines and for greater lighting facilities.

The offices have also been enlarged, an entire new section having been added to the building, making more room for the engineering department, for the sales and advertising, and also for the accounting department. This change was greatly needed to increase their facilities in designing work and for greater centralization in the sales department. The Aurora office is now the main sales-office and the Chicago office from which these operations were previously carried on has become a branch office.

The company is scarcely nine years old, but already is ranked among the leaders in the manufacture of conveying and screening machinery. A progressive policy has always been adhered to and conscientious work has been done. It is an institution jealous of its reputation and the quality of its work is the best guarantee of good faith.

# OIL VS. COAL FOR BURNING

One of the features of development and progress in the clay industry during the past year has been the increasing interest taken in the question of oil as a fuel for burned clay wares. It has been amply demonstrated that a greater uniformity of product can be produced through use of oil and a laborious and more certain control of burning operations secured through the use of this fuel. However, it has been a question as to the comparative cost between oil and coal as fuel, and the following article by the well known ceramic engineer, Mr. George Luce, will therefore be of interest as Mr. Luce during the past year has given his particular attention to the subject of oil burning and through careful experiments and investigations, has been able to secure data which will enable manufacturers of clay products to determine more accurately the economies in the use of oil as compared with coal.


SECTIONAL ELEVATION OF PIPING AND ARCHES.
CHICAGO PLANT 12-17-1910
GE LUCE
ARCH THRU KILN
KILN SHED POST.
ARCH THRU SCOVING
EXTENSION ON ARCH
STEAM CONNECTION
ANGLE VALVE
ATOMIZER
EXPANSION STEAM CONNECTION
OIL CONNECTED IN SAME MANNER.
KILN STEAM LINE
SADDLE
GROUND LINE
THESE OPENINGS ARE MADE EVERY SECOND POST
8" SEWER PIPE.
CEMENTED JOINTS AND DRAINED.
TWO WAY COCK
PERMANENT STEAM CONNECTION

Chicago Oil Burning System.

---

In preparing this article, the questions pertaining to the clay industry have been kept in mind at all times. The insufficient data obtainable from the clay working trade has led to the use of tables from boiler practice as a comparison, but the conclusions arrived at are no doubt sufficient for the forming of definite conclusions. The cuts are shown for comparison only, as to the different methods employed to gain the same results.

### Results of Combustion.

Professor Denton's results show that the net evaporation ranges from 14.74 to 15.16 pounds of water per pound of oil. The h.p. varying from 112 to 220 and the burner steam consumption from 3.1 to 4.8 per cent of the boiler output. The boiler utilizes about 78 per cent of the heat of the fuel, which may be considered the best average boiler practice. It is also to be observed that the results in actual practice showed that 98 per cent of the total heat of combustion of the oil, as determined by the calorimeter, as accounted for by the steam production, the chimney gases, and reasonable allowance for radiation. Professor Denton thinks that for a higher h.p. a net evaporation of 14.8 pounds of water is the best economy that can be expected from the use of oil as fuel with steam jet burners. This may be contrasted with 11.79 pounds yielded by excellent No. 1 buckwheat coal.

One more point of the most important nature was brought out by Professor Denton's test. It was not a new point, for all comparative tests have established the fact, and it is well known to those who studied the economies of fuel consumption. It is the difference between the contribution of heat units arising from the combustion of oil and coal; in other words, the comparative efficiency of oil and coal referred to the heat balance.

| | Oil | | Coal | |
|---|---|---|---|---|
| | B.T.U. | % | B.T.U. | % |
| Utilized in the production of steam... | 14,963 | 78.5 | 8,636 | 71.4 |
| Evaporation of moisture in fuel and due to combustion of hydrocarbon.. | 1,245 | 6.5 | 277 | 2.3 |
| Wasted in superheating water products | 113 | .06 | 23 | 0.2 |
| Wasted in dry chimney gases........ | 1,837 | 9.7 | 1,981 | 16.4 |
| Wasted in unconsumed carbon in ash | ..... | ... | 768 | 6.3 |
| Radiation and imperfect combustion.. | 902 | 4.7 | 415 | 3.4 |
| Heat per lb. of fuel as fired, by calorimeter ............................ | 19,060 | 100.00 | 12,100 | 100.00 |
| Heat per lb. of combustible, by calorimeter ............................ | 19,060 | ..... | 14,680 | ..... |

An analysis of this table shows that in the production of steam more heat units were given off by the oil than correspond with the total number of the heat units in the coal, and that the per centage of heat units used was 78.5 of those in the oil, as against 71.4 of those in the coal; in other words, there are so many more heat units in the oil than in coal, and these were so much more available, that it was possible for the oil to devote to steam rising alone more heat units than the coal contained, and still leave 21.5 per cent for other emergencies inseparable from the conduct of the operations. The savings of the heat ordinarily wasted in dry chimney gases is especially noteworthy for the oil shows a waste of 9.7 per cent, as against 16.4 for the coal.

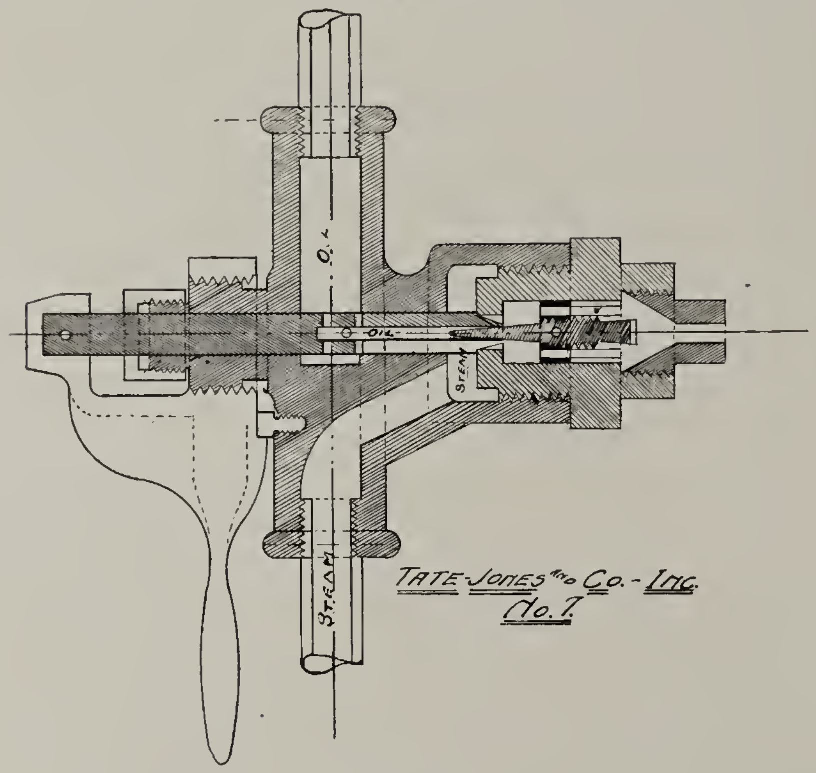


Figure 7.

### ATOMIZING.

The necessity for atomizing oil arises purely from insufficient area of the fuel otherwise treated. A fire composed of lumps of coal is full of interstices and the area of the fuel exposed to the air is much greater than the area of the fire-grate. Liquid fuel cannot be burned on a grate because it would fall through the grate. It cannot be burnt on a flat surface because, being fluid, it tends to flow together and presents only an upper surface to the air. The use of trough shaped bars along which the liquid flows and through which streams of air are admitted does not get over the difficulty of small exposure of surface. There is no incandescent mass through which air is flowing to carry off the fuel in a burned state and to maintain the mass incandescent. If the whole of the liquid mass in a furnace did become incandescent, or ever approach that point, it would distil in the form of vapor, and, if provided with air, would burn away uncontrollably, probably with great evolution of smoke.

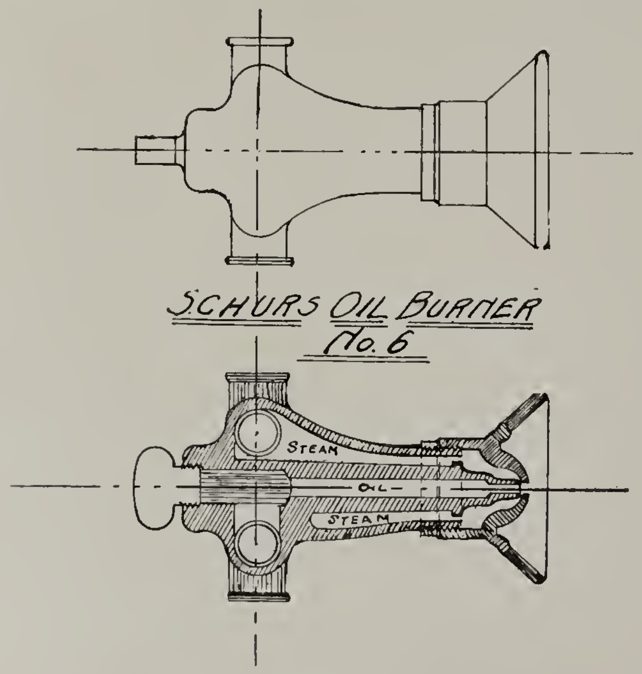
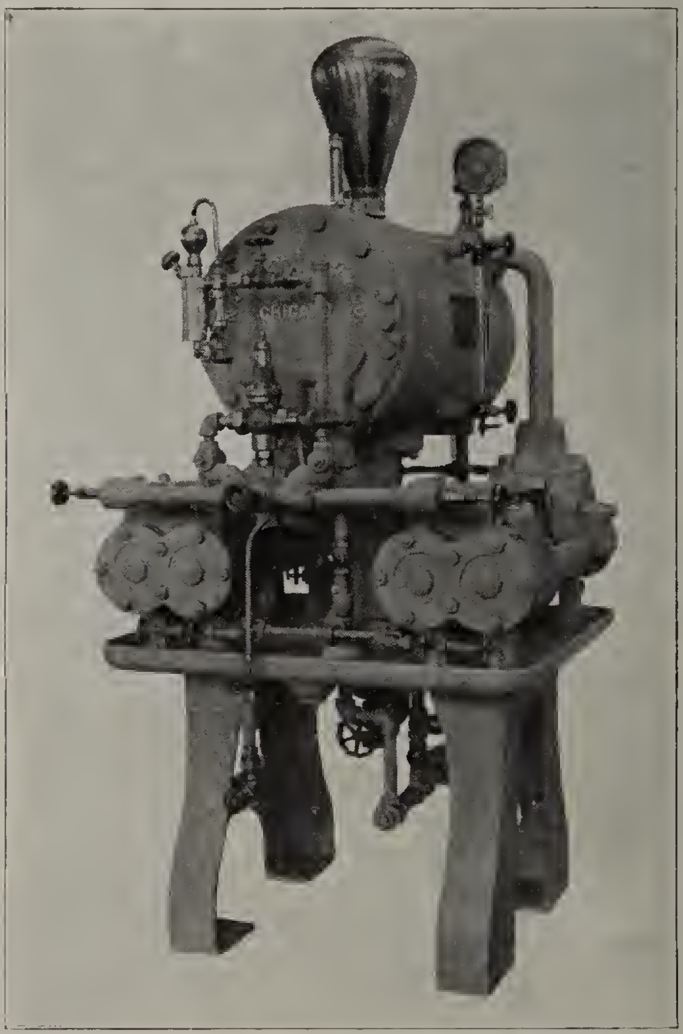


Figure 6.



The Billow System.

The most easily combustible or volate portions would disappear first, and the remainder would probably be left over unconsumed. Thus, if the fire is to be controllable, the fuel must be supplied as it is consumed, so that at no time is there any serious amount of burning fuel in the furnace and the production of steam is at once regulated by a simple regulation of the fuel supply. This end is secured by atomizing the fuel and discharging it into the furnace mixed with air or steam, so that each atom of fuel is in contact with air, and combustion is easily effected. It will be found with all the heavy liquid fuels automizing is essential.

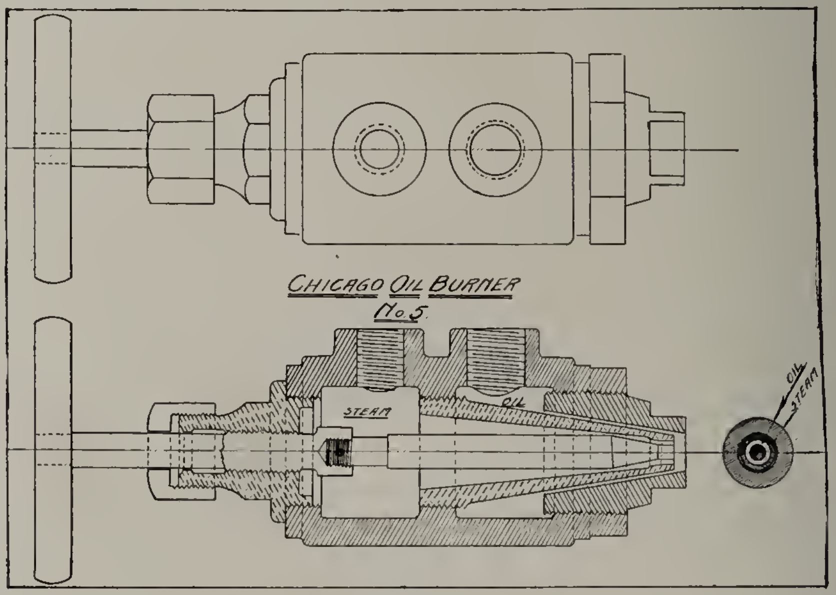


Figure 5.

There are two general schemes of automizing fuel oil, one with steam at high or low pressure, the other with air under compression, and still another with the oil alone under compression.

Another side of the question, however, which must not be overlooked and that is that it is necessary to dilute the oil gas as far as possible during combustion in order to prevent the deposition of carbon, which once formed is very difficult to re-burn and is one of the chief causes of smoke. If the effect of steam as an atomizer were merely the mechanical one of injecting and afterwards diluting the oil gas, and no chemical action took place, the advantage would be on the side of such injectors as do their work by pressure or air and not by steam; but it must be remembered that as the oil spray is heated in the furnace in presence of steam, chemical action takes place and greatly simplifies decomposition of the hydrocarbons. (Vivian B. Lewis in Liquid and Gaseous Fuels).

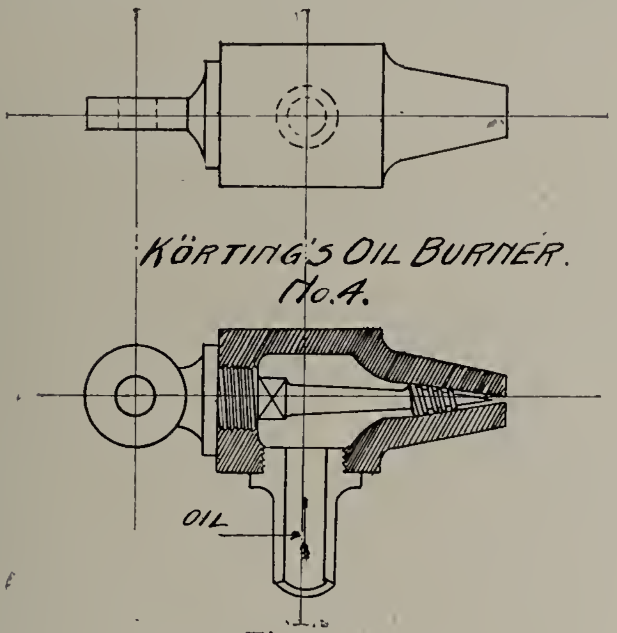
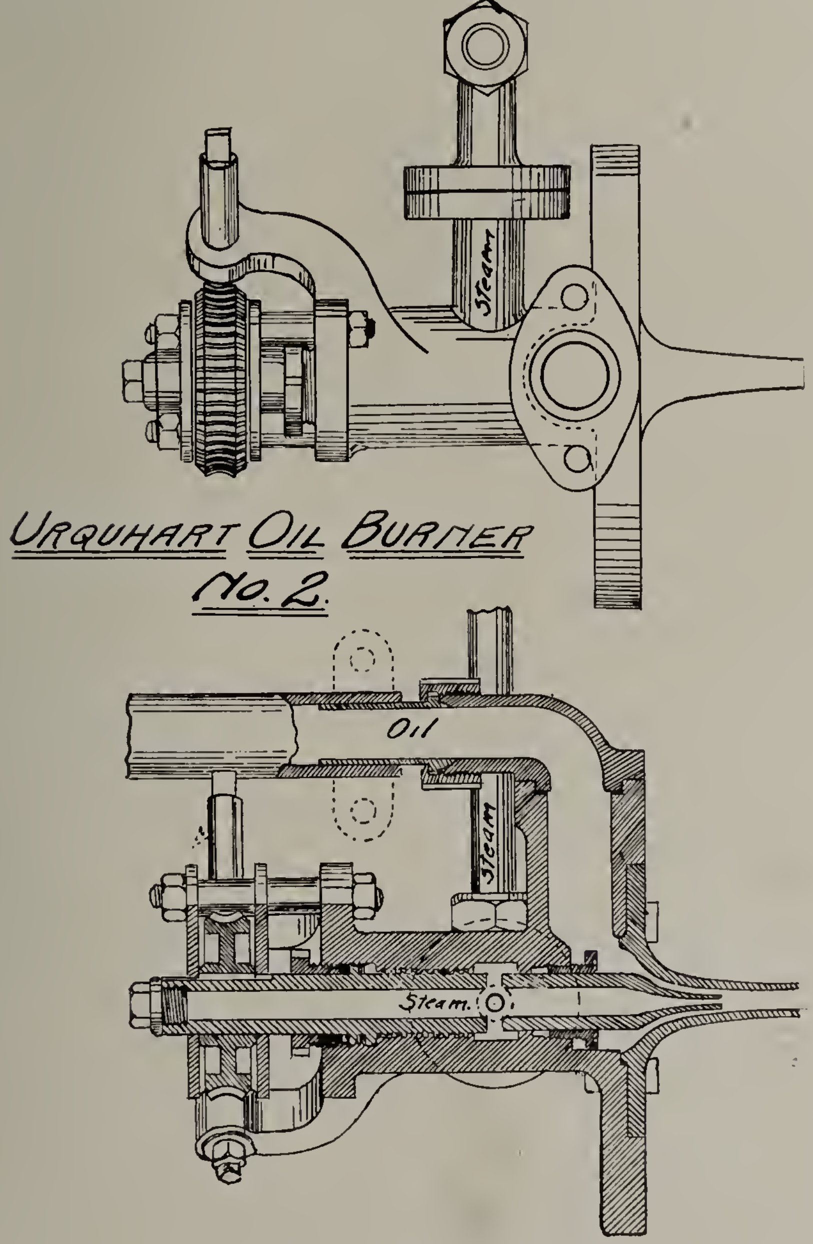


Figure 4.



Urquharts Oil Burner Figure 2.

Another consideration with the brick maker is the installation of compressors to compress air for an air system. This would make him extra machinery and appliances to contend with and introduce to him machinery of a kind with which he is not familiar.

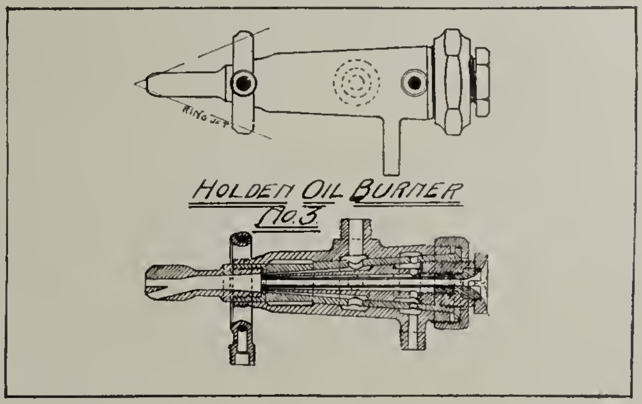


Figure 3.

The difference between steam and air atomizing seems practically nil. It remains simply to compare the amount of steam used direct with that used in compressing the air.

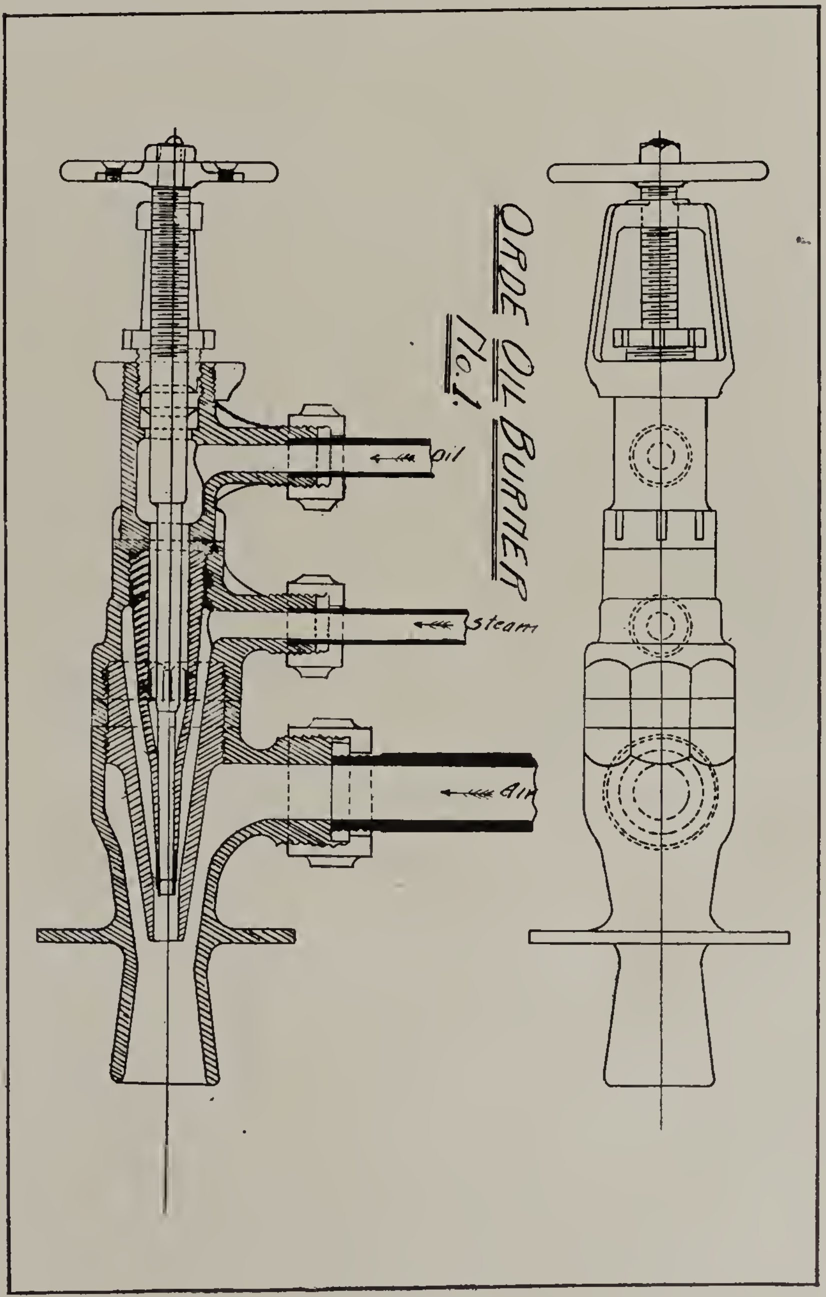


Figure 1.

Petroleum distils more easily when superheated steam is blown through still below the "cracking" point. The effect is peculiar to steam and cannot be secured with air. It appears to be a sort of a solution of the petroleum by the steam, and M. Bertue of the French Marine Militaire, considers that this affords an explanation of the superior power of steam in atomizing liquid fuel.

A comparison of air and steam atomizing by Ellis and Eaves system shows general results as follows: (Booth).

STEAM ATOMIZATION.

| | |
|---|---|
| Water evap. per hour, actual observed conditions | 10,891 lbs. |
| Equivalent weight of water evap. per hour, assuming feed at 110° Fahr. to steam at 180 lbs. | 11,340 lbs. |
| Water evap. per hour from and at 212° Fahr. | 13,145 lbs. |
| Water evap. per sq. ft. H. S., actual observed conditions | 9 lbs. |
| Theoretical total heat value of oil in lbs. of water from and at 212° Fahr. | 19.14 lbs. |
| Water evap. per lb. of oil, actual observed conditions. | 13.4 lbs. |
| Water evap. per lb. of oil, assuming feed at 110° Fahr. to steam at 180 lbs. | 13.9 lbs. |
| Water evap. per lb. of oil from and at 212° Fahr. | 16.1 lbs. |
| Water evap. per sq. ft. H. S. from and at 212° Fahr. | 10.9 lbs. |
| Efficiency of boiler | 84% |

AIR ATOMIZATION.

| | |
|---|---|
| Water evap. per hour, actual observed conditions | 10,225 lbs. |
| Equivalent weight of water evap. per hour, assuming feed at 110° Fahr. and steam at 180° Fahr. | 10,710 lbs. |
| Water evap. per hour from and at 212° Fahr. | 12,413 lbs. |
| Theoretical total heat value of oil in lbs. of water from and at 212° Fahr. | 19.14 lbs. |
| Water evap. per lb. of oil, actual observed conditions | 13.24 lbs. |
| Water evap. per lb. of oil, assuming feed at 110° Fahr. and steam at 180 lbs. | 13.8 lbs. |
| Water evap. per lb. of oil from and at 212° Fahr. | 16.07 lbs. |
| Efficiency of boiler | 84% |

The Tate-Jones & Co., Inc., oil burner No. 7, as shown, admits the oil through central passage with spreading needle well to front. Steam is admitted outside the oil and is adjusted with nut in front, has close regulation of oil through central passage.

The Schurs Atomizer—A steam atomizer with central annular passage for the oil, controlled by a valve in the back of the burner. Steam escapes in an annular space around the oil. Different tips or nozzles are advocated.

The Chicago Atomizer—Oil in the outer passage, regulated with the outer nut, and steam in the central passage regulated with the needle valve at the point of the nozzle. This burner is being greatly improved so the oil and steam can be adjusted from the back.

The Kortung sprayer or burner is shown in section, and with its spirally wound needle which throws the oil into rapid rotation and causes it to spread widely at the nozzle.

Tried on the Vladi-Karkas Railway these atomizers, with double jets, sprayed 506 lbs. per hour under a pressure of 60 lbs.—(Booth in Liquid Fuel and Its Combustion.)

The steam is regulated by screwing to and fro the steam cone by a worm and wheel on the regulating handle and spindle. The steam cone can readily be removed for cleaning purposes or the back plug can be taken out while the spray is at work, with little delay.

Holden Atomizer—oil enters at the side some way back of the steam. Steam, therefore, comes inside a thin ring of oil at the mixing nozzle and through the inner tube comes the air which, expanding as it becomes heated, still further aids the breaking up of the oil into spray. The ring jet of steam induces a further supply of air on the exterior of all, and so obtains an alteration of air, oil, and air which promotes admixture and thorough combustion.—Booth.

The Orde Atomizer is triple, oil entering through the center passage with needle regulation. Steam comes outside the oil through an annular passage and air is introduced outside the whole, the mixture being blown through the spreading orifice as spray. The oil does not come through as a solid jet into the combining nozzle, but as a thin annular shell jet is easily atomized.—Booth.

The "Billow System" of oil burning, handled by the National Supply Co., of Chicago, depends for its merit not on the atomizer or burner alone, but upon the engineering features involved. This company has made a special study of the subject for many years.

### Comparative Waste.

This is an important item to the brick makers for during miners' strikes and shut outs, he must store fuel for his continuous use. According to the experiments by S. W. Parr and N. D. Hamilton, Bulletin No. 17 of the U. of I. Eng. Experiment Station, 1907,

A.—Submerged coal does not lose appreciably in heat value.

B.—Outdoor exposure results in a loss of heating value varying from two to ten per cent.

C.—Dry storage has no advantage over storage in the open except for high sulphur coals.

D.—In most cases the loss in storage appears to be practically complete at the end of five months.

W. F. Wheeler translated from A. I. M. E., 1908, confirmed the above conclusions, except that four per cent seemed to be amply sufficient to cover the loss sustained by Illinois coal under regular storage conditions. Taking the lowest estimate of loss, this would mean, in B. T. U., over 100,000 units to the ton of fuel.

In oil the common plan is the storing in brick or concrete cisterns with a cover of concrete or steel. With these tanks, if properly built and provided with covers and air vents, there would be no greater loss than one per cent.

### Comparative Freight Rates.

The rate on coal from Illinois field to Chicago within a radius of two hundred miles of Chicago, is 70 cents per ton. The rate on oil from the Robinson fields to Chicago is 9 cents per pound, basing 6.66 pounds per gallon of oil.

The rate on coal from Illinois fields to Indianapolis is 60 cents per ton, and the rate on oil from the same fields to Indianapolis is 6 per cent per hundred pounds.

It will be seen by the above figures that the rate per hundred pounds is 3¼ cents or practically twice the rate of oil at 7 cents per hundred. But considered from standpoint of heat units, the rate is the same.

### The Advantages.

All the advantages that are gained in boiler practice, including less labor are shown in the following example. More uniform heat can be maintained and a greater distance through the arch can be reached with oil than with coal or wood. Less space is required for the burners than for coal, no grates or repairs for same.

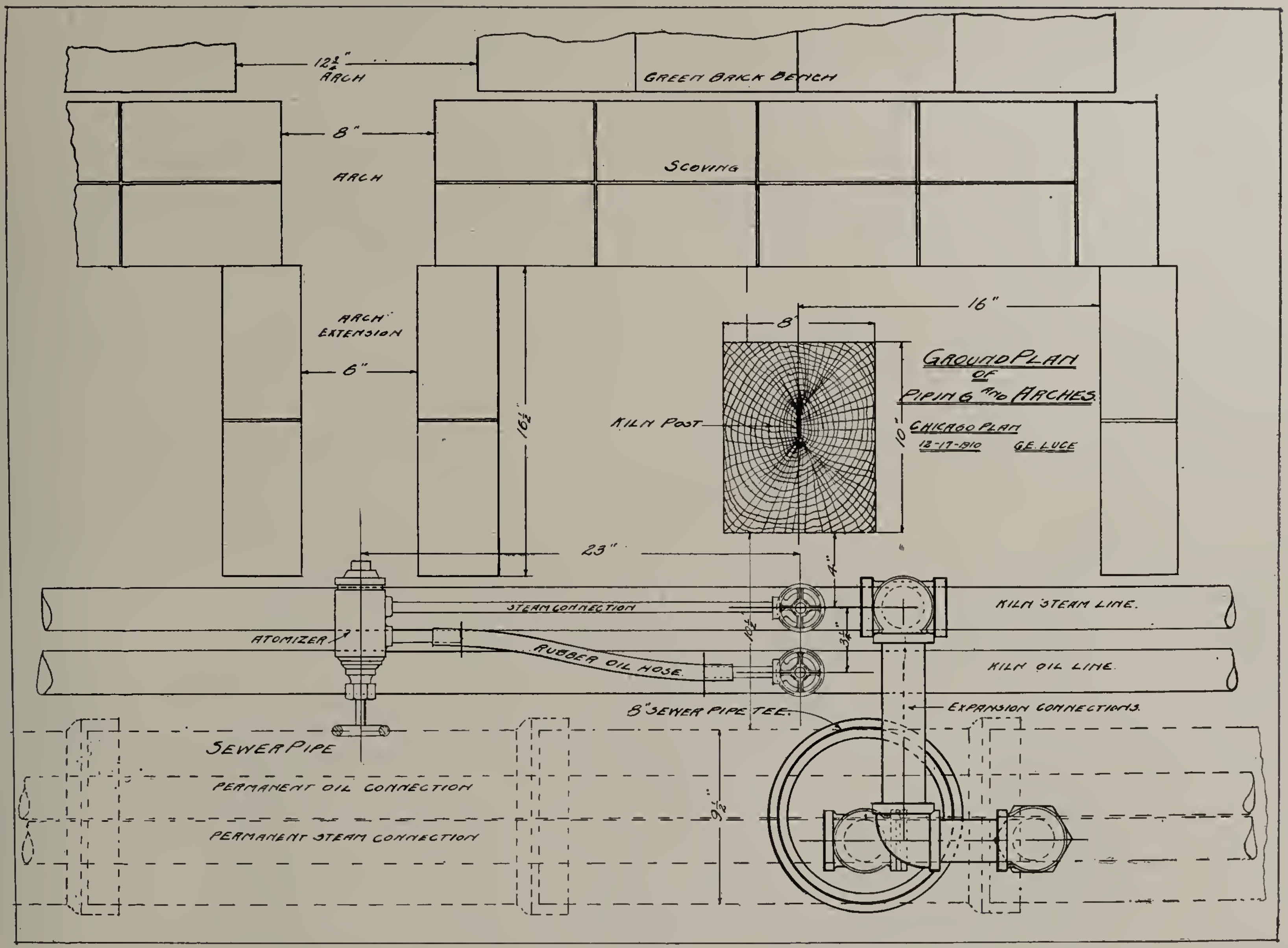
In the working rules, 1910-1911, International Brick, Tile and Terra Cotta Workers Alliance, Section 12, on yards where brick burning is done with wood and coal, one man is to be employed for each five arches or fraction thereof. None, however, to work more than twelve hours, except the head-burner and second-burner who may work eighteen hours.

### Rate.

| | |
|---|---|
| Head burner | $0.42 per hour |
| Second burner | .35 per hour |
| Helpers | .33 per hour |

There is no section covering oil burning, but the practice is for three men, the head burner, second burner and one helper, to burn any size kiln. Each working eighteen hours at a time. This would provide for two men on the kiln at all times.

According to the above rules, the cost of burning a twenty-five arch kiln with wood and coal, allowing



120 hours to burn, would be $188.10, with oil $98.50, or a difference of $89.60. On a kiln with 36 M to the arch would make a difference of practically ten cents per M. While the above pertains to Chicago and union rules, the proportions would apply elsewhere. In the above no account is made of cleaning ashes, hauling coal and wood, or any extra work in handling coal or wood.

### The Relative Values.

| Relative value of coal and oil, fuel account alone considered. | | Relative value of coal and oil, all ascertained economies considered. |
|---|---|---|
| Oil per barrel at | Coal per ton at | Coal per ton at |
| $0.20 | $0.74 | $0.65 |
| .30 | 1.12 | .98 |
| .40 | 1.49 | 1.30 |
| .50 | 1.86 | 1.63 |
| .60 | 2.24 | 1.96 |
| .70 | 2.61 | 2.28 |
| .80 | 2.98 | 2.61 |
| .90 | 3.35 | 2.93 |
| 1.00 | 3.73 | 3.26 |
| 1.10 | 4.10 | 3.59 |
| 1.20 | 4.47 | 3.91 |
| 1.30 | 4.85 | 4.24 |
| 1.40 | 5.22 | 4.59 |
| 1.50 | 5.59 | 4.89 |
| 1.60 | 5.97 | 5.22 |
| 1.70 | 6.34 | 5.54 |
| 1.80 | 6.71 | 5.87 |
| 1.90 | 7.08 | 6.19 |
| 2.00 | 7.45 | 6.52 |

From Booth in Liquid Fuels and Its Combustion.

In calculating the relative values, the writer has used the boiler comparisons chiefly from the fact that no two clays take the same amount of fuel. Thus, in Chicago we find some clays burning with 19½ gallons of oil per thousand brick, others with 15½ gallons, and in some sections of the country a barrel to the thousand brick; so no rule can be laid down that will fit in any great number of cases, but in boiler practice, we find a comparison of heat values, and each individual can make his own deductions according to the local value of his coal or oil and the known heat it takes to burn his clay.

### What Are the Dangers?

Any danger with liquid fuels is with oil which have not parted with their inflammable and volatile gases. There is a danger with oils when used absolutely crude. Purged of these portions, however, oil is safe and moreover unlike coal, it contains no power of spontaneous combustion.

There is no inflammable vapor given off below 142 deg. F. In Prof. Denton's experiments, he does not think that a pool of oil in a boiler room could be ignited from a match or from dropping of live coal into it. A surplus of oil at the burner gives rise merely to thick smoke; there is no explosion or excess of pressure.

### Figuring it Out.

There need be no question regarding the present burners handling oil. The system of storage and piping must be carefully layed out and well put together. When these things are properly done, the burners have but one thing to consider, that is the proper amount of heat to carry at each stage of the burning kiln. This should be easily judged as the color of the heat is taken from the burning brick, and not from the fire in the arch or the fire box.

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## NEW BRIDGE COLLAPSES.

A costly accident occurred near Grinnell, Ill., when the new concrete bridge which had just been completed suddenly collapsed into a heap of ruins. The bridge was considered ready for traffic, but when the forms were removed, it collapsed. The property loss will be heavy, but what a risk to human lives to place such structures where the lives of every passer-by is endangered.

## A LIVE GEORGIA ENTERPRISE.

A representative brick plant in the good state of Georgia, is that of W. E. Stevenson, located at Lavonia, Ga., on the line of the Great Southern Railroad. The property is located on ten acres of valuable clay land, the material consisting of a rich yellow clay having an average depth of three feet.

Mr. Stevenson has been established at this point only a year, haing formerly been located at Royston with the firm of Campbell & Stevenson.

The new plant is equipped with machinery built by J. C. Steele & Son, including a single column stiff-mud machine and an automatic cutter. The power plant includes an Atlas engine and boiler. Wood is used entirely for burning.

## IMPROVED WELLER OIL BURNER.

The Weller Manufacturing Co., of Chicago, has just put on the market an improved oil burner, which is meeting with great success wherever used and is being reordered in larger quantities every day.

The burner is of a very simple type and has few parts to wear and get out of order; in fact, the absence of repairs and the life of this burner is one of its main features.

The cut shown here gives a cross section of the burner, showing its simple construction.

Another important feature of this burner is the absolute adjustment of the flame. By means of a lock nut at the outlet the flame is adjusted to any required height and locked absolutely by means of the nut above mentioned.

They are in a position to quote very interesting prices, and give further information regarding this burner upon receipt of an inquiry.

## CONCRETE, THE GRIM REAPER.

Two Italians and one Austrian were killed at Marble, Col., by a cave-in of the roof of a concrete vault being constructed by the Colorado Yule Marble Co. Contraction of steel supports, due to frost, was given as the cause of the collapse.

## CHEERFUL OUTLOOK IN WYOMING.

An optimistic letter, from Mr. Irving Dun, manager of the Cheyenne (Wyo.) Brick Co., states that he supervised the construction of the plant, which is a dry press plant with a capacity of 20 M. brick per day. Electric power is used throughout. The dies on the press are heated by electricity very satisfactorily. The brick are burned in a sixteen-chamber continuous tunnel kiln with a total capacity of 320 M. The brick are manufactured of shale which is mined at Iron Mountain, fifty miles north on the C. & S. Ry. Since operations commenced about June 1st approximately 2,000,000 have been sold.

The outlook for next spring looks very favorable and it is the intention to operate the plant during the winter months so that the company will be in a position to take care of the early spring business.

## MODERN CLAY DIGGING.

Much interest is being taken throughout the country in the use of the clay digger manufactured by the Buckeye Traction Ditcher Co., Findlay, O. A number of yards have adopted this wonderful machine for use in their clay pits with great success and it is likely that it will work a revolution in clay digging methods. The above company has just issued a new clay digger catalog and same will be interesting to all clay products manufacturers. A copy will be sent to anyone upon request. It includes statements made by a number of clay manufacturers who have accomplished great economy through the use of the Buckeye digger and it explains the construction and operation of the machine fully. To those who are looking for means for reducing cost, this book will be of great value.

## A RECORD IN BRICK WHEELING.

One occasionally runs across very curious statistics in the newspapers. Here is a fair specimen. It is interesting in spite of the fact that it is useless: An employe of the High Broom Brick Co., near Tunbridge Wells, Vt., holds the record of having carried considerably over 40,000,000 brick on a wheelbarrow in the past 30 years. The weight of the brick is estimated at nearly 130,000 tons, and in the course of his work he has walked nearly 55,000 miles.

## A NEW JERSEY PROPOSITION.

The Granton Mfg. Co. was organized some little time ago and secured a valuable clay property at Granton, Hudson County, N. J. A recent letter from H. H. Walsh, Union, N. J., president of the company, advises that the company will soon begin the erection of an up-to-date plant and that it will be equipped with many new economic and labor-saving devices.

## BRICK AND TILE PLANT.

The splendid new plant of the Gulf Coast Brick and Tile company, three miles from Brownsville Tex., is completed. The company owns a large deposit of brown cameron clay said by government experts to be equal to any other brick clay in the country. C. A. Winsted, late of Houston, is president and general manager of the company, which is composed of local men and capitalized at $35,000. The plant has a daily capacity of 60,000 brick.

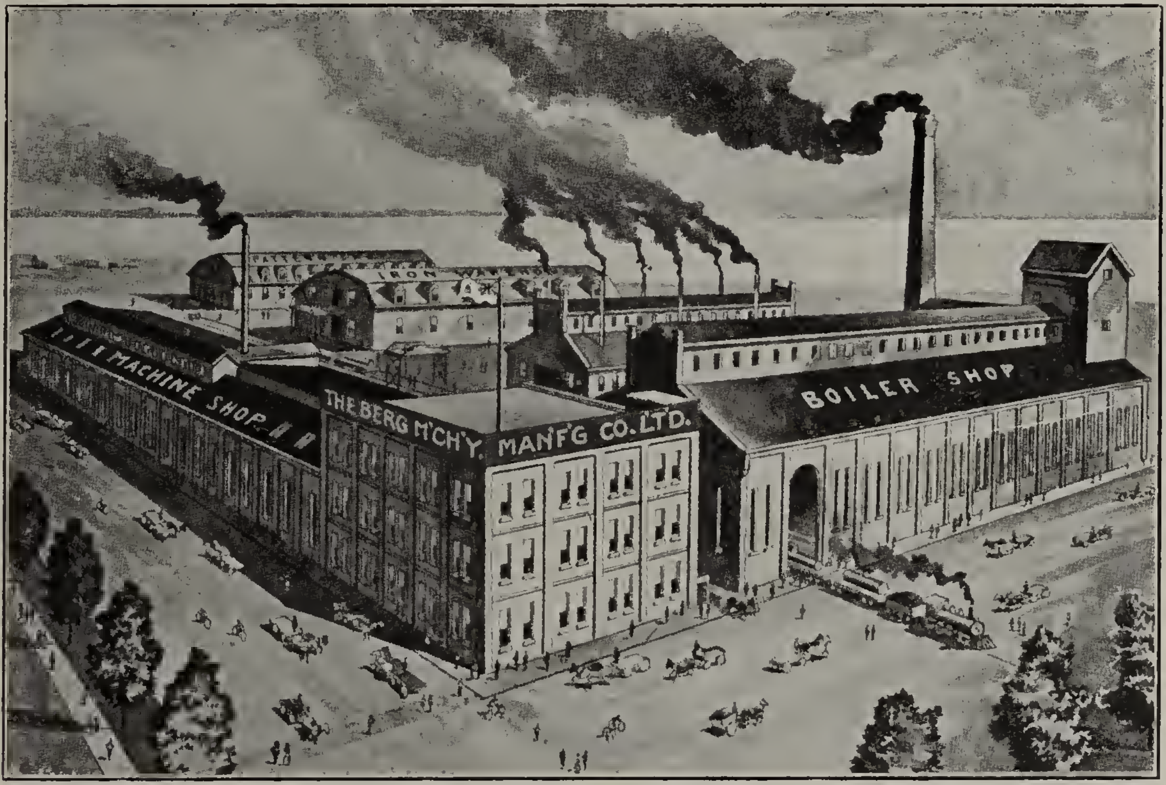
The Harrisburg Clay and Brick Co.'s plant, three miles east of Mt. Holly, Pa., was destroyed by fire recently.

# THE CANADIAN CONVENTION

## Important Discussions on Electrical Power, Piece and Day Work Systems, Kiln Construction and Hollow Block

Canada has a reputation for hospitality which was amply demonstrated at the annual convention of the Canadian Clay Products manufacturers, held at the Prince George Hotel, Toronto, Ont., December 14th, 15th and 16th. The convention was well attended by the leading clay men of the Dominion, and was a representative gathering. The program was of unusual value and interest and brought forth much lively discussion from those in attendance.

One of the very interesting discussions which arose as a result of papers read, was regarding the comparative cost of electric and steam power. The ramifications of the great Hydro-Electric Power Co., who are supplying a large territory with power generated at Niagara Falls, has revolutionized to an extent the industrial situation, electric power is now sold at a very reasonable rate, and many brick plants in Ontario have adopted this form of power. It was shown by the discussion that power costs especially in the Province of Ontario. Central station had been reduced in some plants to as low as eight to ten cents per thousand brick, which is declared to be a much lower cost than it is possible to secure through the use of steam.



Plant of Berg Machinery and Mfg. Co.

As usual, the banquet was the star feature of the Canadian convention and proved very enjoyable and interesting. Many of the delegates took advantage of the opportunity afforded by the Canadian convention to visit the immense clay working machinery plant of the Berg Machinery Co., one of the most important industrial enterprises in the Dominion. Those who had never before seen this plant were astonished to note its size and extent. It occupies a number of large brick buildings, providing ample space for all the various departments of manufacture. In inspecting the works, it is particularly to be noted that the plant is equipped for the manufacture of every variety of clay working machinery. On the erecting floors are seen completed, or in process of construction, a large number of the famous Berg dry presses, to be used for the manufacture of dry press clay brick or of sand-lime brick. There was also to be observed in the course of erection soft and stiff mud machines, cutters, dry pans, disintegrators, pug-mills, crushers, hoists and conveying machinery, also other equipment required by brick plants.

The Berg Machinery Mfg. Co. has given particular attention of late years to the development of the sand-lime brick industry, and has turned out a quantity of machinery for the equipment of sand-lime plants. This equipment includes not only presses, but immense hardening cylinders, tube mills, rotary dryers, mixers and other equipment.

The Berg plant, while devoted at the present time almost entirely to the manufacture of brick and clay working machinery, is equipped to produce a large variety of other machinery, including engines and boilers, and steamboat machinery. The foundry has a very large capacity and is capable of handling castings of the largest size. The machinery equipment throughout the plant is most complete; frequently large castings and machine work have been handled by the Berg company for other manufacturing concerns because of the superior equipment of this plant. Some 300 employees are busily engaged at these immense works and the entire business is supervised by that veteran of the clay industry, Mr. Anton Berg, known throughout the world as the inventor of the Berg Dry Press. Mr. Berg has made the interests of the clay industry his life work, and has the highest ideals regarding the promotion of substantial burned clay construction. He has always taken an active part in matters relating to the clay industry, and is a regular attendant at the conventions of both the United States and Canada.

It is pleasing to note Toronto has again been selected as the location for Canada's annual convention, and the affairs for the 1911 gathering being largely in the hands of Toronto clay men, they will take a particular pride in making next year's convention a record breaker, and it can be expected that everything will be done by them to further the interests of the association and to bring about a successful convention next year. Mr. Robert Davis, head of the famous Don Valley Brick Co., Toronto, one of the largest and most successful brick enterprises in Canada, was unanimously elected president of the association for the ensuing year, and Dan A. Lochrie of Toronto was made vice-president. The second vice-president is W. F. Freeborn of Brantford, Ont., and the third vice-president David Martin, Thamesville, Ont. Mr. D. O. McKinnon, editor of the Canadian Clay Worker, was again made secretary and treasurer. The association is to be congratulated upon its good fortune to have his able services continued.

At the close of the convention a hearty vote of thanks was extended to the retiring president, Mr. W. McCredie of Lyons, one of the veterans of the Canada clay industry, and a man who has given loyal service to the interests of the association. He made a most excellent presiding officer and kept the convention in constant good humor. The clay machinery manufacturers from both the United States and Canada were well represented at the convention. Among them were Mr. B. E. Bechtels of Bechtels, Limited, Waterloo, Ont.; Geo. Drennan of the J. D. Fate Co., Plymouth, O.; E. L. Hess of the E. M. Freese Co., Galion, O.; Messrs. Heafield and Martin of the American Clay Machinery Co., Bucyrus, O., and Mr. Baird of H. C. Baird, Son & Co., Park Hill, Ont. Mr. Baird is prominent in the clay working affairs of Canada, and his company have an excellent plant at Park Hill and are well equipped to supply all the needs of the Canada brick manufacturers, with whom he is very popular.

Some discussion was aroused during the convention concerning an article recently published in the magazine, "Construction," contributed by Mr Anton Berg, concerning the possibilities for profits in the manufacture of dry press brick. It was unforunate that this discussion was started, for it is certain that Mr. Berg's intentions were most commendable and that the whole tendency of the article was encouragement to the clay industry and in line with Mr. Berg's constant policy to further clay working interests. In subsequent conversation regarding the matter, Mr. Berg said that he could not understand why an attack was made upon him, and that he felt no criticism was justified. He thought that the matter should be judged by the whole article, and not by the portion which was criticised. He believes that a constant advance in progress has been made in the brick industry through the co-operation and enterprise of the machinery manufacturers and that credit should be given to them for their co-operation. He believes that most clay workers have not yet reduced their operating costs nearly as low as is possible, and that through the adoption of the most improved and perfect equipment the cost of brick should be reduced as low as his estimate, while certainly there would be no reason for selling below the present market and that thus a very substantial margin of profit was possible. Mr. Berg said:

> "I am sure that this country is at a point where greater demands are made for brick than can be filled with present facilities, and I don't believe that any man is selfish enough to want the market all for himself, but the more in the field the merrier, so the demand will be filled of the best kind of material for the upbuilding of our great cities and our greatest city in the great Dominion, so there will be no excuse for lack of material to build city structures, and what has been said in the convention to be enemies of brick, concrete and steel. Now to the explanation and some data for the reader's consideration.
>
> "The previous article stated, 'in this part of the country.' I will refer to the red shale clay, which is found, for instance, in a belt taking in Beamsville, Milton, Terra Cotta, Georgetown, Streetsville. Oakville, Watertown and Hamilton. Inside this belt I know of that kind of material, and it has been demonstrated that the material will stand quick drying and quick burning, and with proper machinery and properly constructed kilns, waste heat dryers, and everything up to date, a first-class management, that fact can be proved.
>
> "Suppose we should build a plant and demonstrate such a fact. Take five 4-mold presses with proper equipment, first-class kilns, waste heat dryer system, steam shovel, properly constructed conveying machinery; will name such a plant as a 100,000 capacity daily output. I believe at this time I will leave the figures out until I am required to prove this fact, which I shall be too pleased to do during the installation of such a plant or plants upon such a material as before mentioned. Now, where is the argument to the contrary? Have those gentlemen who attacked that article proof to offer? Have they the most up-to-date plants, so nobody could make one better, or to work more economically? I believe there will be a great opportunity from now on to follow up discussion in the paper with proofs from both sides. Take, for instance, if five presses could make, each one, 4,000 more bricks than any other press a day; suppose a $5.00 profit on each thousand; there would be $100.00 a day. Suppose kilns in one yard will burn 1,000 pounds of coal to 1,000 brick, and kilns in another yard 500 pounds of coal to 1,000 brick; there would be $100.00 difference in the fuel per 100,000 brick, not necessarily mentioning wood or drying. Outside the kilns and the presses are many up-to-date improved appliances and machinery, making it possible to get within the limit before mentioned.
>
> "The power has not yet been mentioned in this conenction, but I know that electric power is very convenient in this section of the country, and also very cheap, and when it has been demonstrated that presesd brick is made within that limit with smaller capacity, it certainly must be admitted it will be easier to get within the said limit with higher capacity. I do not intend to make this an advertising scheme, but I certanly shall be pleased to take orders under best guarantees, upon such material as before mentioned, to prove what I have said in the previous article."

### A Forward Step.

A decided step forward was taken by the Canadian Clay Products Manufacturers' Association in the convention held in Toronto on Wednesday, Thursday and Friday, December 14th, 15th and 16th. After meeting in Ottawa, Brantford and Chatham, the members became convinced that this season's convention should be held in Toronto, and a strong effort should be made to enlist the Toronto manufacturers in the association.

The wisdom of this move was shown in the fact that twenty-six members were added to the roll, while practically all the former members were present, making a big net gain in the year.

Moreover, there was a big increase in enthusiasm and in the helpfulness of the discussions following the papers. A spirited, though at no time bitter, controversy took place while the new "Constitution and By-Laws" were under discussion. The election of officers, too, was attended by a more earnest and aggressive spirit than had been the case for several years.

From 1:30 to 2:30 p. m. Wednesday afternoon the members were busy extending greetings to each other, signing the register and introducing new members.

Shortly after half-past two President McCredie took the chair and, after a short speech, invited Messrs. Chas. J. Miller and Wm. Pears to say a few words of welcome.

Mr. Miller expressed on behalf of the Toronto clay-working fraternity a cordial welcome to their brethren from out of town. He pointed out that the building brick industry in Toronto was in such flourishing condition that most of those connected with it were making more money than in former years, and extended the wish that their friends in other centers were doing equally well. The man who did not appreciate the value of such conventions as those held by the C. C. P. M. A. were "chumps." It was easy to hire men to do all the work around a brick yard but the supervising, and the good manager always had his yard so he could leave it for a day or two at any time. Therefore, it was folly to keep tied down to the clay when meetings, bound to be educative and helpful, were being held in town. He was glad to know that a fair number of Toronto men were on hand, and promised that if the convention was held in Toronto for two or three years practically every man in the city would come in. Toronto was too, Mr. Miller concluded, so central that if it were made the regular convention center the membership would be bound to grow.

Mr. Pears added his greetings, promising that every man who stayed in Toronto three days would be bound to learn something. He had not been able to take the interest in the conventions that their value warranted, but trusted that he would be able, in the future, to benefit himself by attending them.

President McCredie replied on behalf of the Association. He was delighted to feel that such capable Toronto men as the speakers and others he saw present would be with them to consider the needs and problems of the clay-working industry. He was sorry Mayor Geary was not present, so the members could secure some assurance of magisterial clemency, if any of them should get dizzy or in any other way lose control of themselves.

### Address by President McCredie.

Gentlemen of the Canadian Clay Products Manufacturers' Association:

I am pleased to meet you at this our eighth annual convention because of the activity in our business it is difficult fo many to be with us. I am pleased our meeting is being held in Toronto. I am told it is a strong rival to Montreal commercially and the largest brickmaking center and consumer of clay products, and an ideal convention city, and I hope our convention meetings will be permanently located here.

I need not tell you that we have had a very prosperous year. The out look now is that manufacturers will be out of stock before the opening of the next season, and many will have orders to keep them busy far into next season.

Our association, in its eight years of existence, has accomplished much, it has been of great beenfit to its members in the way of solving many of the difficult problems that meet the clay-worker in his everyday experience; but it has also developed a social and friendly spirit—a spirit of cooperation among what had previously been in many cases rivalry and acute competition.

I note with pleasure the attitude of our association towards technical education. While there has been but little aparent result, the association seems to be firm in the stand it has taken in the promotion of a technical school for clay workers, and I have no doubt that we will see in the near future a fully equipped school established either here in Toronto or at Ottawa.

I am very much pleased to see so many faces here who were the first to help organize this association, as well as so many new faces. I want to say to you here today that as clay workers we have not done as much as we might or should have done to promote our industry. We have been plodding along, trying to fill our orders and not reaching out into new fields.

There was a convention of, I may say a rival industry held in London some time ago, and it was wonderful the pages of advertising given that meeting and the great expense its promoters went to in making exhibits. One would almost be led to think they were producing the only building material. I want to say to you, gentlemen, that we do not apperciate as fully as we ought the importance of our products. Therefore, I say to you, hold up your heads and defend ad promote the building material that, like our national standard, a thousand years has stood the battle and the breeze.

In this land of ours, with its immense length and breadth, and its great possibilities, and the great need there will be in the future of biulding material, there lies before us a vast field for our products. While brick has been made since the time of the Pharaohs and have proven their reliability as a building material, yet there are many things for the brickmaker to learn that may well engage our attention for two or three days, once a year, in a convention of this kind.

We have not yet solved the problem of economical burning, and, to my mind, will not until we have a continuous kiln for the small brickmaker. Here is a field that may well engage our attention until we have learned better than to waste fuel as we have been doing in the past. Owing to the scarcity of labor in many places, brick and tile makers have been unable to run their plants to full capacity, and as a result many are not able to fully supply their customers.

I do not wish to close this address without thanking the machinery men for their help and interest in these conventions. We are glad to meet them, tell them our troubles, and I beileve they are delighted to help us. One thing is sure: we owe more to them than we are willing to admit, for in one short lifetime, through such men as these, we have splendid and efficient machines for making all kinds of clay products. A year ago, when I accepted the position as president of this association, I did it with much misgivings. I want to thank the secretary and members of the executive committee for their help and co-operation. They have made my work very light indeed.

As the Committee on Technical Education had not met during the year, President McCredie, who is chairman of that committee, called on Mr. J. S. McCannell to speak. Mr. McCannell stated that the Dominion government had appointed a Royal Commission on Technical Education, with one of the leading men in Canada, Professor Robertson, as chairman. The commission had held sittings in the leading cities throughout Ontario, and he felt it would be wise to present to that commission the claims of the clay-working industry for technical education in that line.

Mr. S. J. Fox, M. P. P., supplemented Mr. McCannell's remarks by pointing out the great need for technical education in clay working. A few years ago, he pointed out, Ontario people thought of the rocks and waters of Muskoka as the northern fringe of civilization. But a body of young men, trained in engineering and mineralogy, had gone into the country beyond that, and now we are beginning to realize that great hordes of treasure were awaiting our people in that newly opened part of the province. Who could say what a body of young men trained in ceramics could do for Ontario? They would do one thing, anyway—improve the methods of making all kinds of clayware until the Canadian product was the equal or superior to the best in the world all along the line. Feldspar had recently been found in Ontario, and was now shipped to St. Louis, and part of it back in the finished article. We wanted to train our young men up to make the most of the natural resources of the province.

On motion of Messrs. W. Packham and Albert Deller, a committee consisting of Messrs. McCredie, Bechtel, McCannell, Ball, Lochrie, Janes, Wm. Pears, Miller and Crain was authorized to prepare a resolution setting forth the views of the association for presentation to the Royal Commission on Technical Education.

### Thursday Afternoon.

The opening address on Thursday afternoon was made by President McCredie on "The Hollow Clay Block."

He pointed out that after studying the situation for many years he was convinced that a wall with hermetical air space, impervious to moisture, easy to construct, cheap, strong and of good appearance is an ideal wall. Such a wall is now obtainable by the use of hollow clay blocks. In these days of much experimentation with cement for solid and hollow walls, it is well to study this modification of the old clay brick.

The hollow clay block or brick is now made in a variety of shapes and sizes, and is used extensively throughout the western middle and southern states of America, also in many parts of Eastern Canada. When its advantages are considered, it is strange that farmers have been the first to appreciate these blocks, and that they have been considered so little by other builders. Fifteen years, however, is possibly too short a time to allow for the general adoption of any material unless the manufacturer adopts vigorous advertising methods.

There is no reason why these blocks or similar ones of slightly different proportions should not be used for factory or warehouse construction, or for house foundations and partition walls. Where a wider wall is required, the smaller size of double or single celled hollow blocks can be used.

These are commonly used in the dimensions, 4x6x12, laid beside and parallel to the 6x9x12, then by reversing the courses, making a perfectly bonded wall of 14 inches in thickness and with five dead air spaces. By carrying out this plan, any thickness of wall may be obtained. There is another size of block being used, viz., 3x4x12, which gives a handsome exterior face to a house or factory. It is important to note the superiority of hollow clay blocks over cement (hollow) blocks and solid cement walls. The hollow cement block, despite the hollow space, is not a bar to moisture—as any one can discover by a little testing. These blocks have little to commend them beyond their claims to provide insulation. The hollow clay block wall is less liable to danger from cracking, is of better appearance, costs no more on the average, and gives perfect insulation, the walls being of a kneaded and burnt homogeneous material.

After a brief discussion of the hollow block, Mr. J. W. Warwood was invited to read an address entitled:

"Up-to-Date Kiln Construction," and this interesting paper, and one by J. W. Ball, will appear in our next issue.

### Electrical Power.

Mr. Charles A. Millar of the Standard Brick Co., Toronto, followed with a paper entitled, "Electricity in the Brick Plant." This will be published later.

As soon as Mr. Millar took his seat a member asked if he had ever received a 300-volt shock, and on being informed he had not, advised him to be careful not to.

Vice-President Ball pointed out that the most suitable power depended on conditions existing where the installations were to be made. He had recently figured on a plant where it would have been necessary to bring power seven miles, if electricity were to be brought. When the cost of the transmission line, motors, transformers, etc., had been figured out, it made his hair stand up. If this type of power plant had been installed, there would be very little left for the rest of the plant.

Mr. J. S. McCannell was glad to hear the discussion. He wanted all the information possible regarding power plants, as he was contemplating further installations.

Mr. Dan Lochrie had used electrical power for five years and found it cheaper, cleaner and fully as reliable as steam. A big advantage was, that if it rained and operations were to be stopped, turning a switch would stop all charge, and if the rain cleared away, the power would be started up at once. With steam, the head of steam had to be kept up, thus using up fuel.

Mr. Wm. Pears had used steam for many years and had found steam power safe and reliable, but for the sake of economy had installed electricity and had cut the cost of power in manufacturing to less than half what it was before.

Mr. Heafield of the American Clay Machinery Co., Bucyrus, O., stated that his company were the first to introduce electrical power into brickyards. After many experiences, they persuaded the big electrical concerns to design a motor that, like those used in street cars, had enough torque to enable them readily to pick up a dead load. Now, three-quarters of the plants they installed had electrical power. In some cases the electricity was bought, as the Toronto men were doing; in other cases, a steam plant was installed to generate the electricity.

Mr. A. M. Wickens followed with an address on "Steam Power Needs," in which he outlined the essentials for an economical steam plant.

### Day or Piece Work in Clay Plants.

One of the most helpful discussions of recent years was opened on Friday morning by Mr. S. J. Fox of Lindsay, Ont., in a paper entitled:

Mr. President and Members of the C. C. P. M. A.

It affords me a good deal of pleasure to be here with you on this occasion. I am glad to see so many present, it indicates an interest in the business which we follow.

When your good secretary informed me that the executive committee had invited or wished me to give a paper on which is the better way, "Day or Piece Work in Clay Plants," I felt that it was easy, that any one could give the answer, but when I commenced to look over the ground, I found some disadvantages as well as advantages, in piece work. Personally, however, I am in favor of piece work where it can be done that way, but there is a good deal of work that can not be done except by the day.

Let us first consider the kind of workmen we have to deal with, which for convenience we will divide into three classes.

1st—The careless, lazy and shiftless who only works because he has to, who will stay with you just as long as you will put up with him and the only interest in his work is quitting time and pay day.

2nd—Then we have the steady and honest laborer, who is contented in any place, who is satisfied with 10 hours' pay for 10 hours' work, and who is always on hand for any work and at all times.

3rd—Then there is the man who is full of energy, quick and active, taking more interest in his work than quitting time and pay day

Then, with these three classes all working by the day, at the same work, it is very hard to pay each a different rate of wage per day, if they are at different jobs you can grade the man, so that the best men gets the best places with the highest pay.

The steady and honest man is not to be despised, he is essential like oil to the plant, making the working smooth.

Now taking the above three classes working by the day, it appears as follows:

1st—The shiftless and lazy, the employer suffers.

2nd—The steady and regular, no one suffers.

3rd—The active and quick workman, who is entitled to more pay, suffers because the employer dares not give him more pay.

Now the advantages of piece work are as follows, it acts as a stimulant to the men, they know if they do not work the pay is less, each is placed on his metal, giving each a chance to earn more money, which means a larger output of the plant.

1st—Here again the shiftless can and must be looked after or he will do poor and rough work, and the only thing to do with him is to put him at work that he can not spoil, and not in a gang of good men.

2nd—Then the steady fellow, he is stimulated, knowing he can make a little more pay, so he will not lag behind, but will do his work right.

3rd—Then the smart, active workman, whose pride is quality and quantity, gets the most responsible and best paying job in the plant, the one no employer likes to lose.

With these few remarks as to the advantages of piece work over that of day work, I wish to say that a great deal depends on the grading of the men, the division of the work, and having no drones in the gangs.

Thanking you, Mr. President and members for the time allowed me in giving this paper.

(Continued Next Week.)

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## A CHEAP STEAM-PIPE COVERING.

Brickmakers who live in out-of-the-way spots may find that a mixture of sawdust and lime mixed into a stiff paste with water and plastered thickly on the main steam-pipes will cause a large saving, preventing the loss of much steam by condensation in the pipes. The material soon dries and is better if cased for outdoor pipes. It should be at least 2 ins. thick.

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## CLAY SCRAPINGS.

The Hutchinson Minnesota Brick & Tile Co. have burned 54 kilns of tile this season, for which they have found a ready market among the farmers in their vicinity.

The machinery for the new pressed brick plant at Moose Jaw, Canada, has arrived and is being placed in position ready for operation.

The Wehrle, Blankenship & Bolt Co. have received their machinery and are fast getting ready to open their factory at Carson, Ill.

## RECORD OF DIGGING-COST.

The present tendency of clay-products manufacturers, which it most commendable, is an effort to secure more accurate record of cost of manufacturing; and through the installation of accurate cost systems, manufacturers of brick and tile are enabled to know for a certainty just what their profits are on each thousand of brick and can be guided in their operations by such records.

The cost of each operation of clayworking for one season can readily be seen and the management may determine with absolute knowledge which process is being carried on with excessive cost, and with such a guide they are enabled the following season to reduce these costs.

We are pleased to publish herewith an accurate record of the cost of digging at the plant of the Red River Valley Brick Corporation, Grand Forks, N. D. This record covers a period of 78 days, the clay being dug with a number "0" Thew shovel.

The engineer's time is allowed from the day he started to get the shovel ready until he puts it away for the winter. Fireman's time is allowed from the day shovel started to dig clay until close of season; and laborer on ground was allowed time same as fireman.

For a daily capacity of 40,000 to 60,000 brick, the fireman could be dispensed with; but, as the shovel supplies clay for three machines, averaging 48,000 brick each, per day, and as the clay bank is only four to five feet deep, the services of all three men are required—but not necessitating hard work on the part of any one man.

| | | | |
|---|---|---|---|
| Wages of engineer for 84 days at | $3.45 | per day— | $289.80 |
| Wages of fireman for 79 days at | 2.00 | per day— | 158.00 |
| Wages of laborer for 79 days at | 2.00 | per day— | 158.00 |
| Oil consumed for 78 days at | .06 | per day— | 4.68 |
| Waste consumed for 78 days at | .015 | per day— | 1.17 |
| Packing consumed for 78 days at | .06 | per day— | 4.68 |
| Repairs for 78 days at | .273 | per day— | 21.35 |
| Steam coal, 50,150 lbs., 78 days at $5.65 per ton, 643 lbs | 1.81 | per day— | 141.67 |
| Water, 49,100 gal., at 17c per M | .10 | per day— | 7.80 |
| Cost per day | $9.768 | | |
| Cost for 78 days | | | $787.15 |

Engineer's time being allowed for 84 days makes the difference in cost per day for running time shown in statement.

Average number of brick per day, 144,000.

Cost per M. for putting clay on cars, 7 cents.

Average number yards clay put on cars per day, 320.

Cost per yard 3 cents.

## TREATMENT OF BELTS.

Engineers often pay little attention to their belting except that which is giving immediate trouble, when as a matter of fact, proper treatment with a suitable preservative at regular intervals would greatly benefit all the belting. Not only would the life of the belting itself be prolonged, but by increasing the pliability and lubrication of the internal fibers, the belting is kept softer and will cling to the pulleys better, so that it may be run slack without slip. This alone insures a saving of power that would much more than pay for the attention and preservative preparation. Anyone will understand this on considering that the natural ingredients of a leather, cotton or camels hair belt or a manila or hemp driving rope, slowly dry out, leaving the contact surfaces too hard to make close pulley contact. Unless something is added to replace these natural ingredients, the belt or rope cannot be expected to grip the pulley close enough to transmit full load.

It stands to reason also that while the slip may be prevented by undue tightening, this is not the right method to make the belt do its full duty. The added tension cannot help but increase journal friction, strain the shafting, increase the danger of hot boxes and worn bearings and increase the number of delays due to sudden belt failures, the preventing of which alone effects great saving. No matter how well the bearings are lubricated, some of the pull on the belt is wasted in overcoming added friction, and the capacity of the drive is reduced to the extent of overcoming this.

On the other hand, a belt that is kept clean, mellow and otherwise in good condition throughout, by means of a suitable preservative bends around the pulleys with less resistance and, by reason also of a closer conformity with unevenness of the pulley surface, can be eased or even run slack without danger of slip under full load. In fact a belt that is properly filled and is of correct dimensions for its work should break before slipping.

## KILN WASH PREPARATION.

In many cases a wash of clay for the crown of kilns is not sufficient to tighten the crown. A mixture of fifty parts of broken unburnt brick or tile, forty-five parts of screened kiln ashes, and five parts of coarse salt can be prepared by soaking. The mixture, which can be used as a thick paste, should be made sticky by the addition of flour. The crown should be carefully cleaned of all unevenness and all loose burnt material. In order to determine if the mixture is tight enough, a small experiment can be made on the kiln crown, and if the mixture does not prove tight more salt can be added. If the mixture is found to be too easily fusible, a lesser percentage of salt should be used.

## A MAMMOTH KILN.

Local brickmakers are interested in the firing of the big kiln at Horace Purinton Co.'s plant at Waterville, Me. The kiln is probably the largest one in the state, as it holds 1,150,000 brick. It takes nine days to burn the kiln and thirty-six men divided into a night and day crew of eighteen men each feed 300 cords of wood into the kiln before the brick are burned. The brick will be used by the company to fill the contracts which they have on hand.

## INNOVATION IN RAILROAD EQUIPMENT.

The R. D. Nuttall Co., Pittsburg, Pa., has introduced an innovation into railway equipment parts by bringing out case hardened gears and pinions. The Nuttall Co. has had a good many of these in service for sometime, but deferred announcing the new line until experience had shown that the case-hardened gears would perform well under severe conditions. The operation of the gears, experimented with, has been so satisfactory that the Nuttall Co. has decided to make case-hardened gears and pinions a part of its regular lines.

## A PECULIAR CLAY.

One of the interesting Illinois plants is that of C. Solfisburg Sons, manufacturers of brick and tile, Aurora, Ill. This yard was started in 1860 and made a hand-made brick until 1880, at which time machinery was installed and a red brick manufactured until 1906. Since then a new plant has been built, new clay beds opened up, and a white brick has been manufactured.

The material for this brick is obtained from a 15 ft. bank of stony clay. This is loosened up by blasting with dynamite, and is prepared by running through a hammer crusher. It is then elevated to a one-eighth inch wire screen, the waste being returned to the crusher by elevator. The clay goes from the bin to the pugmill by elevator.

This yard is equipped with a 4-track Barron drier, having a capacity of 30,000 brick every 24 hours. Fifty thousand brick are burned in each kiln, five full days being taken for the operation.

Up to date this year this yard has made 22,000,000 brick, and will operate all through the winter. There is an excellent market for the product and it is sold red-hot out of the kiln, there being no chance to pile up stock.

A feature of this yard is the peculiarity of the clay used. Three hours after the last fire has been put in the kiln, the plugs are taken off the top of the kiln, doors are torn out, and cold water turned in from wells, under the brick, while they are at a white heat. In this manner they are cooled rapidly; but, strange to say, they never check or crack.

Electric power is used altogether at this plant for all operations except, of course, the drying, the drier being operated by steam.

The Solfisburg yard is the only active brick proposition now located on the C., B. & Q. R. R. between Chicago and Galesburg.

## FUEL PROBLEMS.

"The Volatile Matter of Coal" is the title of the first bulletin issued by the new federal Bureau of Mines. The authors, Horace C. Porter and F. K. Ovitz, conducted their investigations at the Pittsburg station while it was under the technologic branch of the Geological survey, the work being a continuation of the fuel investigations begun several years ago. The results obtained at that plant showed that the work of determining the fuel values of the coals and lignites in the United States with a view to increasing efficiency in their utilization would be incomplete if it did not include systematic physical and chemical researches into the processes of combustion. Hence in their later investigations the authors carried on such researches, concentrating attention on those lines ef inquiry which promised results of greatest economic importance. This bulletin is therefore a report on an investigation of the volatile matter in several typical coals—its composition and amount at different temperatures of volatilization.

## LOAD CARS BY ELECTRICITY.

The Brick plant at Manteno, Ill., have recently put in electric machinery for loading brick into the cars. The machine has a capacity for loading several thousand brick per day.

## WILL ENLARGE PLANT.

The Willard Brick & Tile Co., at Heron Lake, Minn., is reported to be doing a fine business and plans are being made for enlarging the works to keep pace with the demand.

## COMMENTS FROM ANTON VOGT.

The following from Anton Vogt, well known throughout clay circles as an authority on kilns, will be of interest:

"I will in brief review what I have observed in my travels the past year.

Last spring I was engaged in expert service in Georgia and talk about shipping brick. Why, they load 'em nearly red hot, so the cars catch fire. I've seen 'em smoke.

All over Georgia the clay-brick business is flourishing, but what misery will exist when once the Shaw process captures the market, revolutionizing the brick-making all over the world, making brick cooled ready to load in 200 minutes! That beats the process of melting the clay and running it into molds and doing away with burning.

During the past summer I was on the Pacific Coast, going over to Victoria, B. C., to correct faults in glazing sewer pipe and I succeeded with a clay that was hard to glaze, as the B. C. Pottery Co. testify in their letter.

How I did it? Easy.

With reducing conditions I changed the ferric iron (which burned the clay to a buff body) into ferrous iron, changing the buff into a bluish body with a flashed skin, taking the salt-glaze fairly well and 'there you are,' as their burner, Mr. Wm. Stevens (in the harness 17 years) expressed it.

In B. C. the brick business is fine, not only brick, but fireproofing is used extensively by the English in building. The houses are built very much different than in the States, more in the old country English style, more ornamental and there is not one house that has not a flower garden. There was a flower show at the time of my visit in July to which I was invited. It was said there were not only beautiful flowers on exhibition but also beautiful women. While I like both, I have always made it a point—to admire and pick only those in my own garden.

The help in B. C. in the brick yards are mostly Chinese, but nobody needs to imagine that because they are Chinese, they work cheap, not at all, they know the standard of wages and they demand it, working by the task, by the thousand. Hindoos are also plentiful, working mostly in lumber yards.

When one of them dies, the undertakers and coffinmakers do not make much. They burn up their dead.

I was taken out by Mr. Stevens, the burner of the B. C. Pottery Co., to the woods not far from Esquimalt Harbor.

There the Hindoos had cleared a place of timber and I could see the remans of a fire, where they had burned up one of their dead not long before.

They pile wood on the dead, put kerosene on it, light it, and the roasting begins.

I picked up two bones, burned white like chalk, supposed to be finger-joints. I took them home with me in my satchel and showed them to my wife and children. The bones are not at home any more.

Brick in B. C. are worth $12.00 per M. for common brick.

Wood is $4.00 to $5.00 per cord and the best lump coal $5.25, laid down.

Vancouver parties are contemplating the erection of a mammoth sewer pipe plant, perhaps only on paper.

Concrete is also used in B. C., but not so much as in the U. S.

In the Northwest the clay industry is at full swing. The Denny-Renton Clay & Coal Co., of Seattle, with their four plants at Van Asselt, Renton and Taylor, Wash., are overrun with orders for their various products, consisting of sewer pipe, paving blocks, fire brick, fancy face brick of many shades and architectural terra cotta. I was engaged at the Vanasselt and Taylor factories doing expert work in their sewer pipe department, the results of which are described in a letter from the general manager and secretary of the company, Mr. J. R. Miller, who is the true general of the vast army of workingmen, foremen and superintendents, producing clay products requiring a million-dollar pay-roll per year.

There is no sign that concrete will crowd out burned clay as a building or paving material.

I hereby enclose a copy of the letter from the company telling about the fruits of my labor there. It goes to show that in every plant, no matter how perfect a system they have, there is always room for improvement.

In general, I believe that 1911 will eclipse any previous year for a market in burned clay. More brick houses will be built than ever before.

If it was not for that autocrat, the bricklayer, many who build frame houses would build of brick, but they hesitate, not only because it costs so much to lay the brick, but because many brick houses look so homely, the mortar being smeared all over the brick.

We need more and better bricklayers, that lay brick in a workmanlike manner; men that are bricklayers and not brick plasterers."

## LIABILITY FOR INJURY TO MINOR.

A "trucker," between 18 and 19 years of age, was one day assigned the duties of feeder, which were to superintend the feeding of the wet clay into the mouth of the mold, by which it was converted into sewer pipe or tiles. After a while, observing that no clay was being brought up on the belt, he spoke to the pressman on the lower floor, who was in charge of the machinery, telling him this fact in order that he might stop the machinery until a new supply of clay was obtained. Then noticing that there were several lumps of dry clay already in the mold, in order to take them out he got on his knees and reached down to where they were. While he was thus reaching down, by some cause wholly unexplained in the record, the signal bell rang, the pressman started the machinery, and the "head" came rapidly down into the mouth of the mold, catching his hand.

The signal bell, which hung beneath the ceiling of the first floor of the plant, was operated by a string which came through a hole in the floor and was fastened somewhat above the place where this employe, as "feeder," was required to sit in order to superintend the incoming clay. This string was entirely exposed after it entered the room where he was required to work, and the slightest touch would ring the bell, and thus set in motion the machinery which pressed the "head" down into the mold.

Assuming that it was the employe's duty to reach down into the cylinder and get out lumps of dry clay which by accident might be deposited there, the court of appeals of Kentucky says, Owensboro Brick & Sewer Pipe Co. vs. Glenn, 106 Southwestern Reporter, 1195, it was obvious that this duty was one of direct peril to him under the existing arrangement of the cord controlling the signal bell, because, just above him, while in the act of taking out the dry clay, there was the enormous "head," which might be driven into the cylinder at any moment if the bell was rung; and it would be rung whenever the exposed cord was touched with the slightest force. The question in this case, then, narrowed down to this: Did the employer furnish the minor employe with a reasonably safe place in which to perform this extremely hazardous duty? That this string could have been so insulated as not to place the employe's life or limb in jeopardy by every untoward contact of a foreign force with it went without saying; and it seemed to follow that the question as to whether this insulation was or was not within the pale of reasonable diligence to protect the employe in the hazardous duty he was called on to perform was a question for the jury to determine. It was clearly the duty of the master to furnish the employe with a reasonably safe place in which to perform his duties, and what is a reasonably safe place under all the circumstances was eminently a question for the jury to determine.

The court was not impressed with the argument that the fact that the string was exposed, so that the bell might be rung by almost any accidental force coming in contact with it, made the danger so apparent that the employe, in the exercise of a reasonable discretion, ought not to have engaged in the performance of the duties of a "feeder," and especially as the employe had not reached the years of discretion. Youth proverbially lacks discretion and foresight, and the court is not able to say that the employe in this case ought to have been able to at once summon up before his mind all the hazards of an accidental ringing of the bell, and in this way reached the conclusion that the duties were too dangerous for him to perform.

Possibly the argument would be sound or, at least, of much more plausibility than the court deemed it, if it had been shown that the employe had seen or known of the bell being rung by accident before; but nothing of this sort appeared in the record, and the court is not willing to say that it was so plainly the duty of the minor employe to anticipate all of the evils and dangers which might arise from an exposure of the string to the accidents of chance that he should be deemed guilty of such contributory negligence in continuing the employment as precluded a recovery on his part for the terrible misfortune which befell him.

It was the duty of the employer to instruct and warn its youthful employe as to all the dangers incident to his employment, and if it failed to do so it should be held responsible for any mishap which followed; and the question as to whether it did or did not do so, or did or did not do so with sufficient explicitness as to duly impress the mind of the young man with the danger of performing the duties incident to the employment at which he was engaged at the time he was hurt, was one for the jury to determine. The fact that it was unknown what particular force, accidental or designed, caused the bell to ring, was immaterial. The negligence of the master (assuming it to be such, was in so arranging the machinery and its manner of operation that the slightest accident might endanger the employe's life.

## PYROMETRIC CONTROL OF KILNS.

A correspondent writes that he recently visited a yard where the proprietor had at one time made money, but that for nearly two years he had been unable to pay his way, as the brick burned so badly. The real difficulty was that the newer clay deposits he had reached required more skilled burning than the older ones, and he had not realized this, but continued to rely upon his judgment. A friend persuaded him to adopt a pyrometer system and when he had been accustomed to the use he found that the proportion of his poor brick rapidly diminished and his business simultaneously improved. Yet the added cost was very small, a sum which was, in reality, far more counterbalanced by the larger quantities of brick sold. There are plenty of other owners of yards in a similar position as this brickmaker.

# SEWER PIPE NEWS

## SEWER PIPE OUTLOOK.

"We have been operating all of our sewer pipe plants to capacity during 1910, and it looks to us as if 1911 will be a year equally as good for the trade as has been the last twelve months."

These words were spoken to a representative of "Brick" by the president of one of the largest independent sewer pipe manufacturers in the middle west. The manufacturer explained his views concerning the future by declaring that early in the year there would be a tendency upon the part of municipalities throughout the country to take up sewer improvement work, and commencing in February bids would be asked for furnishing such required supplies.

During 1910 there was a lull in business, so far as eastern buying was concerned, while just the reverse was true concerning business in the middle west, west, south and southwest. In the east the money market was rather tight, and unless improvement bonds were offered at a good margin they were not bought. As a result, many improvements in that part of the country were held up indefinitely.

But on the whole, 1910 was not a bad year, and indications point to a prosperous season in the sewer pipe trade during 1911. There is not a manufacturer of sewer pipe in the country but who would welcome the opportunity to get more for his product, and as it is unlawful to form any sort of working alliances, the manufacturers of pipe have to get the best prices for their product possible. However, all in the business appear to be "making a fair living."

Some inquiries concerning deliveries of sewer pipe for 1911 are now being received by the manufacturers.

## CEMENT SEWER COMPETITION.

Interviews with prominent manufacturers of vitrified clay sewer pipe seem to indicate that the unwarranted competition of cement for sewer construction is not so threatening as heretofore, the leading engineers having become satisfied regarding the relative values and only using cement and concrete in the work for which these are particularly suitable. While there are just as many engineers now as there were five years ago, who will take bids on both materials, there are more of them who do it to invite competition in price rather than with any intention of using cement. They, of course, desire to keep down the price of vitrified clay pipe.

There are also more municipal officials and engineers now than five years ago or even two years ago who will not approve of cement in sewers. They have investigated the question carefully and have educated themselves and that is certainly all that the clay men can ask for when such competition is decided entirely on its merits, there can be no question of the adoption of burned clay in preference to cement. There has undoubtedly been created a doubt in the minds of very many who previously had been won by the cement fallacy and there has been a substantial increase among those whose doubts have been changed to absolute conviction in favor of clay.

There appears to be a more hopeful feeling among the clay sewer pipe manufacturers and the outlook is encouraging.

## BURN SEWER PIPE WITH OIL.

The Lehigh (Ia.) Sewer Pipe & Tile Co. have been experimenting in burning sewer pipe with crude oil. The first kiln was quite successful, the goods proving to be a little better than that burned by the old method. One kiln has been equipped with a Shurs crude-oil burner and if it continues successful the entire number of kilns will be similarly equipped. The crude oil is carried to the grates of the kiln in small pipes while a larger pipe carries the steam. The oil is pumped under pressure to the jets at each grate of the kiln, there it is generated, the steam is turned on, which throws the fire back into the kiln. As this is the first experiment of the kind in Iowa the outcome will be watched with much interest by the clay manufacturers of the state.

## SEWER EROSION.

Tests made during the past year as to the wearing qualities of the various material used in sewer construction have established beyond question the superiority of burned clay. These tests largely relate to absorption and loss by abrasion and in every case the burned clay showed the most favorable results. Combining the percentages on the rubbing test and sand blast test on some thirty-five samples of brick, cement, concrete and vitrified clay pipe, it was found that the cement materials showed the greatest losses, running from over 19% for a 1-2-4 stone concrete up to 49% for a 1-2 cement mortar. The best vitrified pipe showed a loss of only 15 82/100.% The best of the vitrified brick used in these tests showed losses as low as 7 and 8 per cent.

## CHANGES IN THE AMERICAN SEWER PIPE CO.

Mr. A. A. Bennett, who has been with the above company for many years, has severed his connections with them and will engage in other business. Mr. John Schott, who has been in the employ of the company for twenty years, has been promoted from foreman, succeeding Mr. Bennett as superintendent. Mr. E. J. Van Allen, sales-manager for the Michigan Sewer Pipe Co., has been made manager of the American Sewer Pipe Co., in addition to his former duties as sales-manager. The Michigan Sewer Pipe Co. does the selling for the American Sewer Pipe Co., which does the manufacturing.

## BAKER, OREGON, TO HAVE BRICK PLANT.

A corporation is being formed at Baker, Oreg., for the purpose of building a large plant for the manufacture of brick, tile, sewer pipe, etc. The clay pit is located five miles north of Baker and experts estimate that there is available over 3,000,000 tons of the white clay. The stockholders will all be local men.

# DRAIN TILE & DRAINAGE

## SOME NEEDED DRAINAGE LEGISLATION.

By A. O. Anderson, B. Sc., Drainage Engineer.

One of the disagreeable things with which the contractor in drainage construction has to contend, is the looseness with which many of the county boards of supervisors handle their specifications and contracts. This is, in many cases, due to the insufficient amount of engineering work the boards deem expedient in drainage, but a few dollars thus spent would save much controversy upon the completion of the drainage system and the final settlement for the work done and the materials furnished. The various clay worker's associations can further their own interests as well as those of the general public by securing legislation, which will compel the county boards of supervisors to secure definite data as to the quality and quantity of work and materials needed before they let the contracts and begin the construction of a drainage project.

Tile Works at Roanoke.

The procedure commonly used in Iowa for the establishment of a public drainage district is as follows:

A petition accompanied by a bond is filed in the auditor's office by some interested property holder describing in a general way the lands which will be affected by the course of the desired drain. The county board of supervisors then appoint an engineer to make a survey of the lands involved, design a suitable drainage system for the tract, and file these with an estimate of the cost of the recommended drain, if he considers the project feasible and of public utility.

The engineer's favorable report being filed, a day is set by the board when all interested parties may appear before it to discuss their objections and damages, or suggest changes in the plans as filed by the engineer. If the board then decides the drainage system feasible and not too expensive, the drain is established and the auditor goes ahead to advertise for bids.

A commission is appointed by the board to assess the cost of the proposition to the lands involved in proportion to the benefits received. This should be completed before the contract is let, but frequently is deferred until long after the completion of the drain.

An engineer is appointed to have charge of the construction and the contract let for the materials and work.

Upon the completion of the installation, the engineer makes his final report as to the condition of the drain and if it has his approval the board makes the final settlement with the contractor. Here is where the interesting time for the contractor begins, for during the construction it is the custom to make the necessary changes as they come up regardless of the effect they may have on the original contract. Errors in the preliminary survey are frequently found, personal agreements between some property holder as to the location and depth of the drain, and the board, are resurrected from some obscure record book, and a great many other things may make changes necessary which were unknown to both the contractor and construction engineer at the beginning of the job, yet there is nothing to do but to go ahead and trust to the good will of the board to allow the claim for "extras" which always result from this system.

As may be noted from the above outline, the services of an engineer are divided into three distinct phases: first,—to make the report as to the feasibility, cost, and designs of the proposed system; second,—to assist in making the assessment of benefits; and third,—to have charge of the construction. Since the first step is but a preliminary one, the outcome of which is not certain, the engineer makes as rapid and cheap a survey as practical because if the proposition is turned down by the board, the petitioner must pay the cost of the survey, besides it is seldom that the report, plans, and specifications as recommended by the engineer are adopted in their entirety for at the preliminary hearing many changes are advisable to offset objections and damage claims and to harmonize the plans with private agreements, existing between property holders in the drainage district.

These changes are very essential but are the source of disagreements and disputes upon final settlement because the boards usually go ahead and let the contract upon the preliminary plans, with such alterations as they see fit while, as a matter of fact, after the district has been established a complete location survey of the drainage system should be made on the ground so that any errors in the preliminary survey, conflicts and discrepancies due to changes authorized by the board, or other desirable change then noted, may be adjusted and precise data as to the work to be done and materials to be furnished secured, so doing away with all extra claims at the final settlement.

Permanent reference points and bench marks should be installed at frequent intervals, in fact the setting of solid grade stakes at hundred foot intervals would not be bad engineering practice. This would obviate any contention between the engineer, board, contractor, and property holders as to the depth and location of the drain during the construction. Rigid specifications as to the quantity and quality of both the labor and materials could then be drawn up and, with thorough inspection, a drainage system satisfactory to all concerned would be installed.

The lack of standard forms of proposals, specifications as to the quality of the workmanship, materials and contracts is a matter of embarrassment, as bidders on drainage work can confirm. This could be easily remedied by having a state board composed of engineers and lawyers, who would draw up standard drainage forms and have a general supervision of the legal and engineering side of the drainage proceedings.

The thorough inspection of a drainage installation during its construction is sadly neglected as the engineer in charge is usually given so much work that he can devote but a few days per month to each proposition. This would be all right, providing that he was allowed to keep a competent inspector on the job at all times when work was in progress but usually this is regarded as an unnecessary expense. The thoroughness of the work then depends upon the honesty of the contractor, but the contractor as well as the engineer is put at a disadvantage because of the lack of thorough inspection, for the contractor knows not if the work or materials installed during the absence of the engineer will be acceptable and the engineer at the completion of the job cannot certify that everything is all right, besides there are always rumors originating from dissatisfied property holders regarding the "bum" work and materials installed during the absence of the engineer, which frequently renders final settlement for the installation very difficult.

There is, therefore, need of legislation which will secure for public drainage projects, in Iowa at least, a reliable location survey to be used as a basis for letting the contract and making the assessments, a standard set of legal forms to be used by all drainage projects within the state, and a thorough inspection of all the materials and workmanship entering into the drainage system. It would not be amiss to adopt some system for financing the projects so that it would not be necessary to issue a large number of drainage warrants upon which either the drainage district or the contractor must stand a large discount. These reforms may be secured either by direct legislation or placing the engineering and legal side of the drainage projects under the supervision of a state board.

Installation of Murray Outfit at Rockford, Ia.

## IOWA PLANT INSTALLS MURRAY POWER.

The Murray Iron Works, Burlington, Ia., has recently completed the erection of a power plant in the new factory of the Rockford (Ia.) Brick & Tile Co., consisting of a 300 H.P. Murray Corliss engine, 2 150 H.P. Murray high pressure tubular boilers and one 350 H.P. Murray heater with pumps, piping, etc. One of the cuts show the plant on cars at Rockford and the other the hauling of the machinery across the Rock River owing to the bridge being too weak to hold it.

## NEW OREGON TILE PLANT.

The North Plains Tile, Shale & Brick Co., is the name of the new company at Portland, Oregon which has purchased a site for a factory. They will be in the market for the necessary equipment and machinery.

## PRIZE TILE.

Expert tile men say that the Butler, Ind., tile is superior to any tile made in northern Indiana. The men who financed the tile mill are well pleased with prospects. Ten thousand dollars worth of the tile will be manufactured by the company next year.

# The Advantage of Tiled Lands in Dry Years

By J. R. Haswell, Assistant Drainage Engineer, U. S. Dept. of Agriculture.

While crossing a strip of fine corn land in western Kentucky last June, the writer met the farmer who owned the corn and remarked to him on the fine stand of the crop. The floods had not yet come and the average crop of the neighborhood was behind his on account of the lack of moisture. The farmer said that all of his land was tiled. Some of the mains in another field were stopped up so that the system in that field could not work. His predecessors had left no map and he could not locate the trouble without one. The difference in the two fields was easily noticed and the production of corn the year before gave a difference of about 20 bu. per acre. The season of 1909 had been very dry, yet the drained land produced over 100 bu. per acre. This is just one actual instance of many cases which makes one ask the question, "Why will tiled lands produce more grain in a dry year than untiled?" The answer is brought out below.

Fig. 1—Soil in Need of Drainage.

The first action of a tile drain is to remove the gravitational water from the soil. This water is that portion of the soil moisture that is free to drain away, the passage to the drains and through them to the outlet, being caused by the action of gravity. The moisture remaining in the soil is divided into several groups, the only one of importance to the growth of all crops, except rice and cranberries, is capillary water. This is held in the soil by capillary attraction and can move about, due to that attraction, as oil in a lamp wick.

The wetting and drying of a well drained soil causes it to form into grains or crumbs which makes the loose structure and gives the good tile so much sought after by the farmer. Simply letting air into a heavy clay makes it break up to a remarkable degree. This change from a puddled condition to a granular structure forms a number of pores or small spaces between the soil grains. These pores act like the fine spaces in a lamp wick. They hold the proper amount of water from each rain and draw the water up from below the tile when the rain fails. It is impossible in most puddled soils to form the right amount of pore space without underdrainage. This loose condition of the soil reduces evaporation from the surface which is of great help in a hot, dry season. We see then that the water that will drown a crop is carried off, more room is made for the retention of the right class of water, more water can be drawn up from the subsoil, and great extremes in moisture conditions are evened up; all through the agency of tile drainage.

In a soil that contains too much moisture plants will in general develop slim water roots which have few branches. As the soil dries out these water roots die and larger roots which add to the life of the plant are formed. These send out numerous branches in a ramifying system throughout a greater volume of soil. The production of water roots entails a loss to the plant as these are of no service under proper moisture conditions and in a well drained soil would never be formed. The real roots of the plant extend downward several feet into the soil but when the level of the gravitational water is near the surface the roots cannot go their full depth. By draining off the excess water the roots are allowed to go deeper into the soil and when a drouth comes they can abstract capillary moisture from a much larger volume of soil. The plant is thus permitted to draw on much more soil for food, due to the increased range of its roots.

Good drainage furthers the production of plant food, chiefly through the air that is admitted to the soil when the gravitational water runs off. After each rain, air is sucked into the soil while the surplus water is going into the tile. The space which was filled with water before drainage is now occupied by air. This aeration of the soil breaks down the raw materials composing it into materials suitable for plant food. Aeration also helps to combine fertilizers with the soil. The application of commercial fertilizer or manure, either from the stable or from a green manure crop, to an undrained soil is often useless as it washes off over the surface without doing any good. When the land is drained plant food is washed into the soil where the roots can get it. The objection might be raised that the drains will carry off some of the fertilizer, but careful tests on drained lands have shown that this is practically nothing. The soil acts as a strainer or filter and takes the plant food out of the water as it passes downward toward the tile while a stream over the surface can freely wash the fertilizer away.

Fig. 2—Field from Which Sample in Fig. No. 1 Was Taken.

The color of a soil is generally a good indication of the need of drainage and is considered a fair measure of the amount of plant food contained in that soil. Black and red lands are most always rich while white lands are often "crawfishy," containing "black gravel" and concretions of lime. The "black gravel" is small pieces of bog ore and like the lime is of no use as plant food in that state. When this land is drained the concretions will disappear and the incorporation of humus will make it dark in color. A mottled appearance in the color of a soil shows the need of drainage. Figure 1 shows a vertical column, 6 ins. high, of a soil that is badly in need of drainage. Figure 2 is a picture of the field from which the sample was taken. The field requires a regular system of drainage, i. e., parallel laterals over the entire area. This is an aggravated case and was used here to bring out the greatest difference in color. The surface is perfectly flat and the shading is all due to the change in color over the surface. The darker tint is a deep red while the lightest is a white sand. Numerous shades of orange and yellow are present. If the soil was in the proper condition to be taken up by the plant as food it would be all of a dark reddish brown color and this will take place when the drains are installed and aeration takes place. When a drouth comes there will be more food within easy reach of the plant and it will not have to send its roots a very great distance to get the necessary sustenance.

Summing up the whole question it is seen that the grain can get more water from a soil which is underdrained than from a soil that is not drained. It can also get more food. These two points have led farmers in England to drain clay hill-sides with laterals spaced two or three rods apart. This country is beginning to realize the advantage of tiling for aeration and many of our most up-to-date people favor it.

## A SUCCESSFUL NEW YORK TILE PLANT.

Although the drain-tile business in this country started in New York state, yet the manufacture of this product has not been devedoped to the extent in the east that it has in the middle west. One of the few large and successful tile plants in New York state is that owned by John H. Jackson, known as the New York State Drain Tile Works, located in Albany. This plant has both railroad and water transportation facilities and is well located on 10 acres of excellent blue and yellow clay land. The yellow clay over-burdens the blue.

The plant itself occupies several well-constructed buildings, including three dry sheds, 30x200 ft. in dimensions and two engine and machine houses.

The clay is secured with pick and shovel and hauled in the usual way adopted in the east, by carts and dump wagons to the plant or the weathering piles. Although it is not necessary to weather this material, yet nevertheless at times it has been thought advisable to do so.

The preparing machinery consists of a Newell crusher. All the material, however, is not put through the crusher, frequently the clay being dumped directly into the machine.

Contrary to the usual custom on the Hudson River, the stiff-mud process of manufacture is used. The equipment consists of a Brewer tile machine and an American brick and tile machine. The cutting is done by hand.

The hot-floor system of drying is employed, the hot air being blown up from under the floor through a system installed by the Green Fuel Economizer Co. The drier is constructed of brick and steel. Thirty-six hours are required for the drying process.

Another departure from the usual method on the Hudson River is the style of kilns used for burning; there being three down-draft kilns used at this plant. Two of them are 30 ft. in diameter and one of them 40 ft. Soft coal is used for burning, about six tons being required for each kiln burned. The kilns are of the open-floor type.

The power plant consists of two 100-h.p. corliss engines and two horizontal tubular boilers of the same capacity.

This plant was established in 1852 and has been rebuilt several times. The present owner, John H. Jackson, succeeds the firm of Jackson Brothers. Under his efficient management the plant continues in successful operation for 12 months of the year, its principal product being drain tile of which it manufactures a superior quality.

## CONDITIONS FAVORABLE.

In a recent communication, The Portland (Ind.) Drain Tile Co., says, in regard to conditions: "While there is considerable drainage going on in this part of the country, there is not as much county work being done as there was a year ago. It looks like there would be a good demand for small tile this winter. However, will say that the business is getting to be somewhat overdone in this vicinity, as we see it.

## DRAIN TILE IN INDIANA.

The Portland Drain Tile Co., whose plant is located at Portland, Ind., has been doing a successful business the past year in drain tile, and its officers expect that there will be a good demand for drain tile throughout this winter. It appears, however, that there is less county drainage work being done in that territory than heretofore, thus lessening the demand for large sizes of tile. The Portland Drain Tile Co. makes both tile and hollow block, but gives its principal attention to the former product.

J. L. Fulton is president of the company and W. C. Hoover secretary and treasurer.

## SUCCESSFUL IOWA PLANT.

The Dautremont brick and tile works at Monticello, Ia., has had the most successful season in the history of brick and tile making in that city. Thirty-two kilns were burned and the product amounted to 130 car loads. Two thirds of this amount was sold to the farmers in the vicinity of Monticello, who came to the yards and hauled it to their farms. Forty-three car loads were shipped to near by towns. Mr. Dautremont is one of the oldest and best brick and tile makers in Iowa and has built up a splendid business. The product of the Monticello plant being recognized as among the best made. He has a good stock of tile and brick which will meet the demand until the works are again started in the spring.

## ENLARGES TILE PLANT.

Mr. C. E. Fleming has recently acquired a controlling interest in the Tama (Ia.) Brick & Tile Works. The company was incorporated a year ago with a capital stock of $20,000. The plant has been put upon a splendid working basis, with flattering prospects for the future. The material has proven to be of the highest quality with a practically unlimited supply situated on the spur of a railway. The factory has not been able so far to fill its orders, an order of 30 carloads being recently turned down because it could not be filled.

Mr. Fleming brings ample funds to the company, as well as business experience. We understand that new kilns will be added and the drying rooms enlarged in order to care for the increasing business of the company.

### PROFITABLE OHIO PLANT.

Miller & Coulson, of Pittsburgh, Pa., operating the eight-kiln plant of the Ohio Clay Product Co., at Salineville, O. (Columbiana Co.), have announced that an additional kiln will be erected in the spring. The company has just installed a new Corliss engine, but will not remove the Mansfield engine which has been in the plant for years. The new kiln will be 32 ft. in diameter, agreeing in size with all of the others.

Building blocks and drain tile are features of the production at the Salinesville plant, and there are two points concerning the operation of the plant that stand out prominently: One is, the firm has never lost a day in operating since it acquired the plant, and the other feature is that the company never has any blocks "on the yard." So fortunate has the company been, that orders have been so heavy that shipments are made direct from kilns. There are times, however, when a few thousand "seconds" assemble, but these do not last long, and are soon cleared away by an order for a couple of car loads.

Showing Battery of Kilns at Plant of Ohio Clay Products Co.

Although the company is operating almost at the mouth of the Big Vein Coal Co.'s coal mines, gas is being used for fuel, and at a rate of about 10 cents per M. cu. ft. It is the lowest rate ever obtained by a manufacturing plant in Columbiana Co. A kiln is fired off in thirty-six hours by gas, with coal seventy-five hours would be required. The head offices of the company are in the Diamond Bank Building, Pittsburg. There is one 9-foot Stevenson dry pan in the plant, and a mixture of fire clay and shale is used.

### TO INCREASE CAPACITY.

Fifty per cent capacity will be added to the Springdale plant of the Sioux City Brick & Tile Co. The company now turns out 30,000 brick a day in this plant. Fifteen additional laborers will be employed as soon as alterations in the plant are completed.

### WILL MAKE EXTENSIVE IMPROVEMENTS.

The Benton Harbor (Mich.) Brick & Tile Co. has made several changes in their organization. The new officers are: J. M. Mauer, president; F. W. Popahl, vice-president; J. F. Mauer, secretary-treasurer and manager. The company is planning extensive repairs and remodeling this winter.

### NEW DEMAND FOR TILE.

A Texas firm asks for information as follows:

We have a great many inquiries on drain tile especially in the way of sub-irrigation. Now we have had many years of experience in tile drainage but very little in sub-irrigation. We would like for you to put us in touch with some authority on this subject so that we may post ourselves thoroughly along this line. We believe that there will be a large number of tile used for this purpose in this part of Texas in the near future and we want to be prepared to answer all inquiries.

### LANDS BIG TILE CONTRACT.

The W. L. Macatee & Sons Co., at Houston, Tex., has secured a contract for forty-seven carloads of hollow building tile for the Southern Pacific office building amounting approximately to $10,000. The tile will be supplied from the plant of the Athens (Tex.) Fire Brick Co. This is one of the largest orders ever placed in Texas for this class of material. The competition was strong from St. Louis, Chicago and other large cities.

### NEW TILE FACTORY.

The National Stove & Brick Co., 737 N. Y. Life Bldg., Kansas City, Mo., previously mentioned are going forward with their plans for their new brick and tile factory to be erected in the spring of 1911. The company is capitalized at $75,000 with Geo. R. Collins as president; James B. Turner as secretary and treasurer. Oil will be used for fuel.

### TILE WORKS AT ALGONA, IOWA.

The Algona (Ia.) Brick & Tile Works enjoys an enviable reputation for turning out high grade tile. Under the direction of C. J. Madson, Manager, the works have built up a fine line of trade. Orders have been booked taxing the capacity of the plant to the utmost. New improvements recently installed greatly accelerate the drying of goods. Other improvements for enlarging the plant will be added. The cut gives a fair view of the new dryer. The officers are William G. Ferguson, President; E. A. Wolcott, Vice-President; E. F. Swetting, Treasurer, and W. A. Dutton, Secretary.

Algona (Ia.) Brick & Tile Works.

### PROSPEROUS YEAR.

The Uniontown, Ky., Tile Co., have had a prosperous year; their output having been sold as fast as ready for delivery. Most of the product being taken by the farmers in the vicinity.

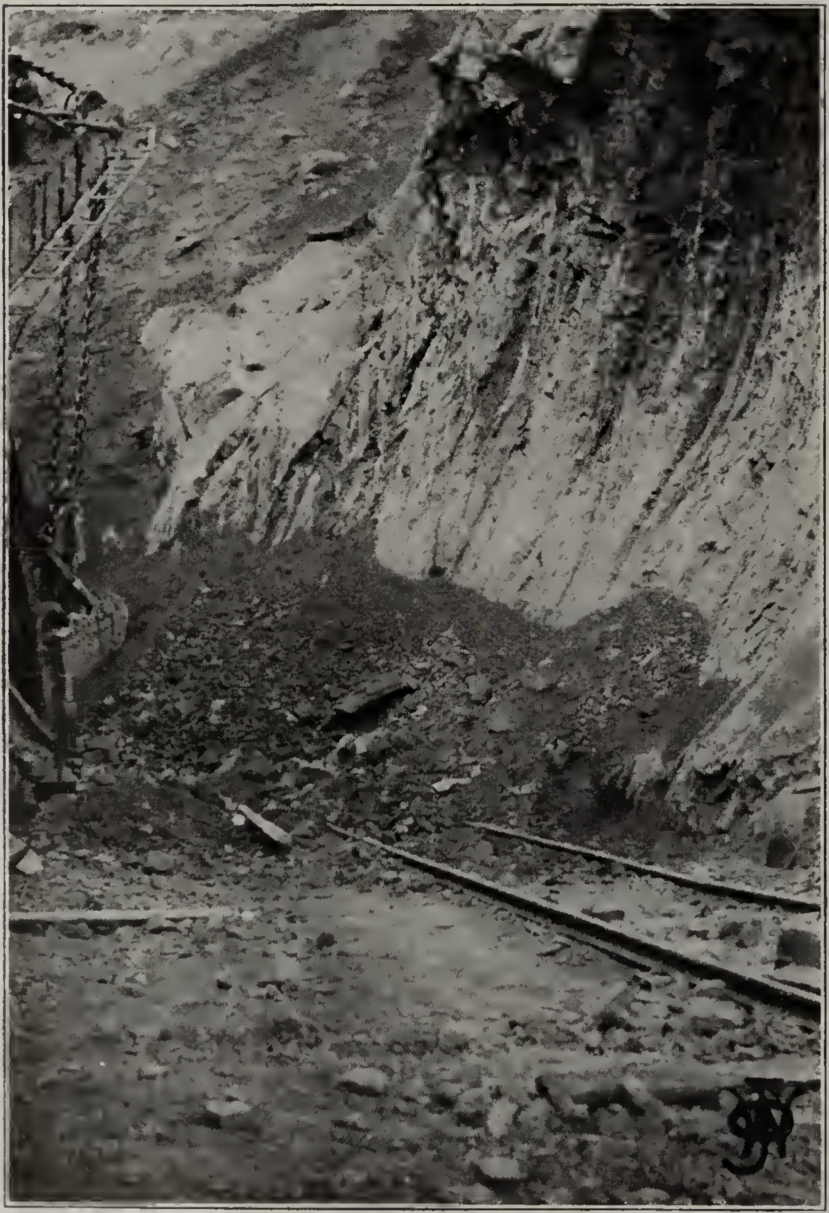
## DECK SWEEPER INSTALLATION.

The Williams Patent Crusher and Pulverizer Co. say: "Our new No. 8 deck sweeper has been running at the Carquinez Brick & Tile Plant, at Port Costa, Cal., since Nov. 7th, and they are highly pleased with the workmanship and operation of same, the heavy construction and the severe work it has accomplished for them. They make common and face brick, using the soft-mud system. Their material, consisting of yellow clay, hard brown shale and extremely hard blue stone, is blasted from the bank and shoveled with a No. 20 Marion shovel, in cars of 40 cu. ft. each.

The stone and hard shale is in lumps from the size of a bushel basket down. They placed the deck sweeper on end of tracks, so if it did not do the work they could go back to their three 9-ft. P. & McL. dry pans. They now see no reason for this, as it has handled the worst stuff they could test out on it.

They are now rigging up the roll drive, as the rainy season is approaching and the material in their banks will be damp and wet. They state they would appreciate our selling the three pans for them, as they need the room they occupy.

Their plant is equipped with two 200 h. p. Franklin water tube boilers and a 20 x 48 heavy-duty Reynolds Corliss Allis-Chalmers engine. Since replacing the three dry pans with our No. 8 deck sweeper, they run their plant with only one boiler and figure they save one-third horsepower formerly used, as they cut out two bucket elevators, screens and about 200 ft. of line shafting, pulleys, bearings, belting, etc., which, with the three 9-ft. pans, consumed this power.



Shale Mine at Porta Costa.

They are easily able to put through 150,000 brick of their medium hardest shale and rock, or 300,000 of the yellow clay. The cars are dumped into the deck sweeper and in one minute's time by the watch the material is ground.

The product is taken away with an 18-inch belt, which discharges into a 14 x 7½-in. bucket elevator running at 250 ft. per minute, then the screens and tailings if any, go back to grinder.

Williams Patent Crusher.

They have saved, in addition to the power above, the work of two men who formerly fed dry pans, and also an enormous repair item from the pans which was occasioned on account of this hard shale and rock going into them.

## PROSPERITY AT MASON CITY.

The Mason City (Ia.) Brick and Tile Co. always progressive and optimistic, have been making extensive improvements in preparation for 1911 with full confidence that it will be a bumper year. Mr. F. E. Keeler, vice-president says:

"On account of the dry season in our territory our sales in 1910 were considerably less than 1909. At the present time we have a large stock of all sizes with which to take care of the trade for 1911. We have increased our kiln capacity at the Sewer Pipe Plant by the addition of two 30-ft. kilns and expect to double our drying floor capacity for large tile at that plant early the coming spring. At the Clay Works Plant we have also increased our kiln capacity by the addition of two 30-ft. kilns. At the Mason City Brick & Tile Plant we have fireproofed our drier, installed a 12-ft. fan, operated by 25 H.P. electric motor, and have replaced a number of small kilns with six new 30-ft. down-draft kilns. This makes the old factory modern and complete along the same lines as the other three factories which we have built during the last five or six years.

The Patton Clay Mfg. Co. and the Geo. S. Good Fire Brick Co., are sending out handsome leather-bound vest-pocket catalogs, which are compendiums of information concerning sewer pipe and fire brick.

# THE PAVING BRICK INDUSTRY

## OUTLOOK FOR 1911.

A representative of The Metropolitan Paving Brick Co., Canton, O., reports conditions as follows: "With regard to prospects for the coming year, will say that there has been more contracts awarded and there is more work in view in the building line, more especially in factory buildings in this city, than there has been the past five or six years, and prospects look very good indeed for the coming season."

A portion of a letter from The Mack Manufacturing Co., makers of vitrified paving brick and block and sewer pipe, Philadelphia: "We are pleased to say that the business which we have enjoyed during the year 1910 has been very satisfactory, the quantity of material shipped being in excess of either 1909 or 1908, although we find that the prices are somewhat lower than the preceding years.

"It is a hard matter to prophesy the condition of the business for 1911, but from the reports which we have received from our representatives in different yarts of the country, we believe that the business will be equal, if not greater than in 1910, and it seems to us that the main factor in making this increase will be the fact that the state highway departments have finally been brought to realize that brick is the only proper material for building state and county roads. We believe that the increased use of brick for this purpose has made the increase in consumption of 1910 and that it will very materially increase the consumption in 1911 and the succeeding years, as it has now been demonstrated beyond any doubt that even though the first cost of a brick road is more than any other kind of construction, the cost at the end of ten years is a great deal less than the cost of any other kind of pavement."

A letter from M. Heckard & Sons, manufacturers of paving, sidewalk and building brick, Canton, Ill., gives some interesting, good-road news: "We are still adding to our goods roads and making them out of brick. The past season we built three and one-half miles of country roads of brick, which, we think, is doing good for us, and still have everybody in the township boosting for us to build more. There is a movement now on foot to connect Canton up to one of our sister towns, five miles away, with a brick road. A little boosting is all that it takes, and it sure is a good thing for any town or township to have permanent roads. It might be of interest to some to know how we built these last three and one-half miles of county road. We did our excavating to the sub-grade and then set our curb, which was of standstone, 3x12, smooth on top and closely jointed. We then put in four inches of sand, and on this laid a course of No. 2 paving brick, flatwise. On this we put one inch of sand and then on edge, a course of No. 1 hard burn pavers, and used sand for a filler. The curb is five inches lower than the center of the pavement, but most of the crown is on the outside, so the curb can be covered with dirt; this protects the curb and also makes it easy to get off and on the pavement. This road is 16 feet over all, 15½ feet of brick and six inches of stone. The roads are paid for out of a tax levied by the township for a period of five years and the contractor gets his money as it is collected. We now have seven miles of country brick roads and believe everybody should boost the good roads cause. Our sales this year have only been limited by our output."

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## FROM THE CONSERVATIVE SECRETARY.

The following letter from the worthy secretary of the National P. P. M. Assn. is of interest:

To Editor of "Brick":

"We cannot truthfully say, on the one hand, that we are altogether pleased with the situation in so far as it has to do with the paving brick industry. Like all other business there are serious handicaps which keep one everlastingly at it, in order to remove difficulties and clear the way for the better condition. In many of the states the improvement laws are afflicted with evidences of personal and selfish interests that in no respect whatever give any advantage to the property owner and tax payer in considering the question as to the kind of paving material he will use. For instance in Indiana, by legislative prohibition nothing but gravel and broken stone is allowed to be used upon her highways, regardless of the fact that brick in many cases is the best and most economical material for use. In some states selfish interests have inveigled into the legislation laws by which a street is really put up at auction to the highest bidder in which is involved the worst of graft methods.

"Many city officials have no adequate conception of the possibilities of a first class brick street. Yet in spite of all this that seems blue on the one hand, a real interest is taken by a large number of officers of influential civic organizations that point to the ultimate goal of a brick street and highway built to insure the greatest possible economy and the greatest possible purpose for which a street and highway is made.

"The collegiate institutions of the country are teaching their engineers effectually as to the necessity of proper and careful construction that means much in the economy of municipal expenditures. Civic societies and engineering societies are coming to appreciate that the $50,000 spent for the street should be as sacredly guarded as the $50,000 that goes into the building, bridge or railway locomotive. All this is encouraging to the paving brick industry, so we look forward with hope and assurance that brick pavements will ultimately become popular out of their superior merit in meeting the most critical demand for a great public utility."

Will P. Blair.

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A Chicago inventor is planning to locate a brick plant at Hutchinson, Kan., where he expects to make brick and tile out of sand by using electricity.

Deckman-Duty Brick Co's. Plant, Camden, O.

## DECKMAN-DUTY BRICK PLANT.

There was always more or less trouble with the water supply at the Carrollton (O.) plant of the Deckman-Duty Brick Co., of Cleveland, O., until General Manager F. P. Nickerson thought out the idea of obtaining a supply from a well system. This solved the whole source of trouble and inconvenience, and a well was put down to a depth of about 200 ft. Then a reservoir with a capacity of 1,500 barrels was built and from that time on there has been no trouble with regard to water.

The sole production of this plant is paving blocks, and the operation continues twelve months in the year. From time to time the kiln capacity has been increased until now twelve kilns are in use. These vary in size from 22 to 30 ft. in diameter, and they are of the beehive down draft type. No. 8 Pittsburg coal is used for firing.

From a hillside probably 80 ft. in height, the shale is obtained, the bank being close to the plant. There is only one 9-foot dry pan, and this is of the Bonnot type. The Bonnot-Richardson presses and brick machines have a capacity of about 35,000 block daily. The boiler has a capacity of about 160 h. p., while the Mansfield engine has a capacity of 140 h. p.

The yard cars used at this plant have been built from plans the company has designed. These were partly built in Cleveland, and part by the firm. There are 120 of these special design cars, each capable of holding 500 blocks.

There are nine tracks in the tunnels, and the blocks are dried by the waste-heat system.

A new office building is being constructed.

## OHIO USES MANY PAVERS.

Road and street improvements have been numerous in Ohio and adjoining states during the past year and millions of brick and paving blocks have been disposed of. The recent enactment of better road laws which tended to increase the number and extent of road improvements had the effect of increasing sales of paving brick. Brick as a paving material is becoming more popular because of the smaller cost of building and the small expense of maintenance. County commissioners and road superintendents in many parts of the country are specifying the use of brick to a greater extent in advertisements for the letting of paving contracts.

The Katakamah Drain Tile Co., Katakamah, Neb., expects to open up its new factory in a short time.

## AMERICAN GOOD ROADS CONGRESS.

At the American Good Roads Congress, held in Indianapolis December 6-9, the real solution of the permanent roadway problem was offered by the paving brick industries through the National Paving Brick Manufacturers' Association. This association had the most distinctive display that was exhibited at the congress. In addition to the display, the vitrified brick men found opportunity to present their cause on the floor of the congress and won many new adherents.

The National Paving Brick Manufacturers' Association's display consisted of brick from thirty-five different plants representing an output of about 500,000,000. Six states were represented in the exhibit, and practically every size and shape of paving brick was displayed.

The various makes were labeled so that the visitor could, without difficulty, find brick made in his own community, and therefore the most accessible for paving purposes.

In addition to the brick, the association exhibited a standard cement grout mixing-box, the use of which is advocated by the association in producing a uniform application of the filler. The four legs of the box are of different lengths, which makes the body of the box set askew. In this way it is necessary to keep the cement, sand and water in constant motion by the use of a hoe, and when the filler is removed from the low corner of the box with a scoop, the cement and sand are bound to be held in suspension. And as the box is never dumped, the usual difficulty of the cement running into the gutter and the sand remaining on the pavement, is not experienced

Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, was in personal charge of the exhibit and spent much of his time during the congress in explaining the proper construction of vitrified brick pavements to the visitors. Many state highway commissioners and state engineers were among the delegates, and in addition to viewing the exhibit and carrying away a quantity of brick literature, they heard Mr. Blair's paper, dealing with the brick pavements as a solution of the road question.

Mr. Blair advocated especially the use of vitrified brick pavements for roads adjacent to cities, subjected to excessive traffic. He urged this method of improvement as of economic value, because the permanence of the properly constructed brick pavement eliminates the maintenance charge which is usually the largest item in figuring the ultimate cost of improved roads. He told of the 300

Exhibit of Paving Brick Manufacturers at the Good Roads Congress, Indianapolis, Ind.

miles of such permanent roadway in Cuyahoga County, Ohio, and of similar improvements in other cities.

After Mr. Blair's paper there was a general discussion, the chairman of which was Mr. Harold Parker, chairman of the Massachusetts State Highway Commission. Mr. Parker was a strong advocate of macadam, but he said that there are places where brick should be used. He thought that roads leading out of large cities, where there is excessive travel, might be paved with brick to great advantage. The immense cost of maintenance of macadam roads, especially since the coming of the automobile, was discussed at length, and the use of brick was also offered as a solution of this problem.

The dominant theme of the entire Congress was the cost of maintenance of roads. Every speaker who advocated a method of road building was the mark for innumerable questions as to the cost of maintenance of that particular kind of road. In a few instances only was there inquiry concerning the original cost.

The special advocates of macadam roads were not able to give definitely the cost of keeping such roads in good condition. But they gave descriptions of the elaborate method of paroling such highways for the purpose of giving constant attention. These advocates were apparently more anxious to show that a macadam road might present a good surface all the time, than they were to show the cost of keeping up such roads.

The delegates showed a special interest in the declaration that the properly constructed brick roadway is more economical than any other kind of highway improvement, considering the first cost, the life of the pavement and the cost of maintenance.

Several suggestions were made to the convention of new road building schemes, but in almost every case of this kind the value of the new methods was lessened because none of these improvements had been in existence long enough to sustain a practical test. This was especially true of certain concrete roads and of some late experiments in Massachusetts in the use of certain oil binders in an effort to protect the macadam roads from the wear of the automobiles.

A definite result of the Congress is the organization of the Indiana Good Roads Association, which has for its purpose the presentation of a proposed law to the General Assembly of Indiana at its session in January and February. The association will seek to have a state highway commission created and the extension of state aid. Under the present law of Indiana, no material aside from gravel and broken stone may be used in highway construction, which is a direct discrimination against the clay industries of the state. And while the paving brick manufacturers are seeking no legal advantage over the makers of any other paving material, they hope through the proposed legislation to have an equal show with all other materials.

## PAVING NOTES.

The State of California has voted $18,000,000 for the improvement of state highways with brick, as it is thoroughly satisfied that nothing stands automobile traffic like a good vitrified brick. An ideal roadway for traffic of all kinds has been planned, consisting of a brick runway 18 ft. wide in the center, with macadam paving at each side.

The City of San Francisco will use 30,000,000 vitrified brick in reconstructing her sewer system and has specified them for gutters, preliminary to paving the streets.

The Oakland California Traction Co. is using nearly 2,000,000 brick for runners along their street car tracks.

About 16,000,000 brick will be held over by the brick factories at Coeymans, N. Y., when the season's business is cleaned up.

The Abingdon (Ill.) Brick & Tile Co., having still large orders to fill, are planning to run during the entire winter. A recent order of 30 cars of the purple face brick was shipped to Rock Island; another order of 15 cars of cherry red was shipped to Canton, O. Both these shades have met with popular favor and have resulted in an enormous volume of business the past year.

Nebraska, Iowa and other western states have done more paving the last year than for many years previous. Brick has been used extensively, particularly in small towns.

## SAVING IN FUEL COST.

Throughout the country generally the question of fuel cost has been taken up and very thoroughly investigated during the past few years by the larger manufacturing interests and it would seem this subject should receive more attention from the manufacturers of clay products.

As a matter of fact the cost of coal is one of the most important items entering into the price of the different lines of manufacture and the experience of the larger users of steam who usually analyze their cost more closely, leads us to believe that there is a chance for a very appreciable saving in this particular.

As a result of the study of this particular subject, engineers have come to regard the use of a good rocking grate as almost indispensable where hand firing is used, and are disposed to give it credit for a considerable saving in the matter of coal, with the consequent increased boiler efficiency.

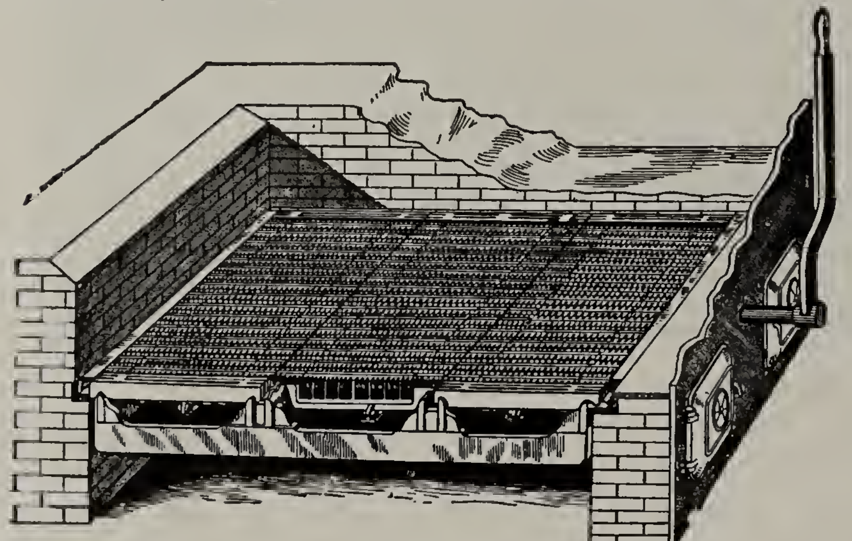

Fig. 1.

We are illustrating what is known as the Martin Anti-Friction Rocking Grate for Steam Boilers, which device has been adopted in a very large number of the plants throughout the country, and which, according to the claims of the manufacturers, has several features which should recommend it for all sections.

The makers claim this grate is adjustable and will handle all sizes and grades of coal, and that it is especially economical with the cheaper grades such as slack and screenings.

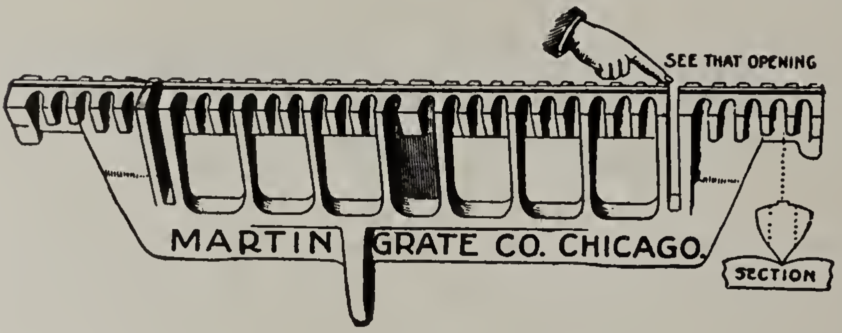

Fig. 2.

They also state that in hundreds of installations where costs are analyzed very closely, the users have been able to get more steam from these cheaper grades of coal by the use of this Martin Grate than from lump coal on other grates, with the consequent saving of the difference between the cost of the coals.

They emphasize the fact that this grate is "fool proof" because there are no long fingers to the grate bars which can be carelessly left projecting up into the fire to be burned off, or which can warp and strike when being brought back to place.

Attention also is called to the fact that the Martin Grate is not a dumping grate, and the very considerable loss of fine fuel that comes from too frequent dumping of the fire is avoided.

It is one of the heaviest grates made, weighing approximately 80 lbs. to the square ft., is made to fit accurately the furnace for which it is intended, and the grate can easily be installed by the local operating engineer without the necessity of any change in the brickwork of the furnace or the boiler front.

Figure 1 shows an assembled grate and showing grate bars with a perfectly smooth surface, so that cleaning tools may be run over its surface as easily as a common grate.

Figure 2 shows one of the grate bars, which are in very short sections, and the two slots cut down near each end, which allow for expansion.

It will be noted that the heavier part of the bar is some 5 ins. below the fire with a thorough cross ventilation through it to prevent its becoming hot enough to warp, and the manufacturers claim in their 10 years of marketing this grate, they have never had complaint of a warped grate bar.

Each grate bar is supported at either end by a bearing bar on which it rests in the form of an inverted cone, making the grate very easy to operate.

All of the framework of the grate, including the bearing bars, are down below and not affected in any way by the fire, so that the only repairs ever called for are the grate bars themselves, which can instantly be dropped into place without the necessity of pulling the fire or shutting down the boiler.

The Martin Grate is manufactured by the Martin Grate Co., 275 Dearborn St., Chicago.

## OUR ANNUAL HARVEST OF CALENDARS.

Our friends have literally snowed us under with handsome and beautiful calendars, and we thank them one and all.

When the E. M. Freese & Co., Galion, Ohio, issued a calendar for 1911, they had just two objects in view—to please their friends and to remind them 365 days in the year that they manufacture high-grade Brick, Tile and Fire Proof Machinery.

The Tuttle Brick Co. Middletown, Conn., believe in doing things in a large way if it is nothing but issuing a calendar. They are remembering their friends with an immense calendar 42 x 29 inches, on which appears a copy of the beautiful painting, "A Summer Squall." The company has been in the brick business since 1842.

The H. C. Baird, Son & Co., Parkhill, Ont., Can., are sending out a 1911 calendar on which appear pictures of the members of the firm, The Eagle Foundry and machines.

The Roessler & Hassalacher Chemical Co., 100 Williams St., New York, are extending New Year's Greetings to their friends by means of a "nifty" calendar on which appears an appropriate picture "The Greek Pottery Dealer."

The Bechtel Limited, Waterloo, Ont., manufacturers of brick and tile-making machinery, are gladdening the hearts of their friends with a handsome calendar on which appears an autumn scene, tempting a man to "take to the woods" at once.

One of the "nattiest" of our consignment of calendars is that from The B. & A. Machine Works, 317 S. Clinton St., Chicago.

A beautiful marine view, "A Stern and Rock-Bound Coast," occupies a prominent place on the calendar gotten out by A. F. Wanner & Co., Chicago.

### OPINIONS OF MANUFACTURERS.

Evens & Howard Fire Brick Co., St. Louis, Mo., say: "We need less agitation of all political issues and especially that of the tariff. It would be a good idea to take the tariff question entirely out of politics. A general policy of the railroads, if adopted, looking to increases of rates on certain commodities and articles that could stand such increases and the letting alone of rates on other articles which are already high enough, would, we believe, solve the problem of their increased revenues necessary for maintenance and betterments, which probably would revive the steel trade on which we are largely dependent for our brick sales."

The Athens (Tex.) Fire Brick Company says: "The prospect for business in refractories for 1911 in this section is very bright. We are closing the best year in the history of our plant, and believe that 1911 will be better than this year. A number of new industries are contemplated, and we see no reason why business should not steadily increase. We are enlarging our plant to take care of the increased business for 1911."

The opinion of The Laclede-Christy Clay Products Company, St. Louis, Mo.: "Legislation restricting or regulating corporate operations should be most carefully considered lest we 'kill the goose that lays the golden eggs.' Measures affecting such subjects as Employers' Liability should be enacted by Congress in order to avoid conflicting state laws."

The Golden Pressed and Fire Brick Co., Denver, Col., says: "We are sorry to say that the brick business has not been particularly satisfactory the past year. The volume of business has not been quite as large as we should like, but worse than that has been the seeming desire of the manufacturers to put each other out of business.

"Just now it seems impossible to get a fair idea of the prospects for the coming year—you can get any opinion you want, everybody up in the air over freight rate question and things generally unsettled. We are hoping for the best."

In a recent letter, Mr. J. T. Gunniss, of the brick dedepartment of the Anaconda (Mont.) Copper Mining Co., says: "We have had a fairly good year; our business keeps up about the same as usual.

"As you know, our field covers the whole western country. Wherever there is any copper smelting, we have business. The copper industry has been somewhat curtailed, and for that reason our business has not materially increased.

"We make only refractory brick, 'fire clay and silica.' Conditions look very favorable for a good business during the next year."

The Kreischer Brick Manufacturing Co., New York, manufacturers of fire brick, say: "From the distributers' viewpoint, the closing year has not differed appreciably in general aspects from 1909. Possibly the consumption of face brick in this market has been somewhat larger than the year previous, but whether this increase, in the face of competition and prices obtainable, has redounded to the pecuniary advantage of the industry in general is open to question.

"From the foregoing, it would appear, comparing the two years, that the net results in this connection do not differ to any considerable extent. It should not be inferred, however, that the industry has not made headway in other directions, or that present indications fail to augur well for 1911. Progressive manufacturers, with improved methods of turning out the finished product, have met with signal success, not only in raising the standard of their regular stocks, but also in producing a variety of specialties necessary to obtain certain artistic effects, the demand for which is much in evidence at this time. Among the specialties largely coming into use, and perhaps to remain permanently, is the brick with rough finished face and head, of gray, old gold and other shades, known in the trade under a variety of names, but made by the one process. It is here opportune to state that for certain effects it commends itself well to the building community, but, unfortunately, where the question of its adaptability for certain structures was not properly considered, the results have invariably been a complete defeat of the artistic effects undoubtedly sought, and which would surely have been obtained with the use of the smooth-face, repressed variety.

"The indiscriminate use of material unsuitable for work requiring special treatment is to be deprecated, as when the structure is completed, many unnecessary criticisms of the brick are in order which would never have been heard had the proper class of material for the front been selected at the beginning.

"As to the prospect for 1911, a brisk demand seems likely, judging by the large number of plans filed for buildings that will, in all probability, be started in the early part of the year.

"As recent building operations seem to have fulfilled the expectations of those interested, as harmony appears to prevail in labor circles, and as capital for building operations is readily obtainable on any sound project, 1911 should prove a gool building year."

The Elk Fire Brick Co., at St. Marys, Pa., own one plant and have another under lease, both of which they are operating continually and manufacturing fire brick and clay. They have a capacity of eight carloads per day, and the general offices of the company are located at that place. Their plants have been operated at 85 per cent capacity throughout this year, and 1911 looks better to them, they say.

### LARGE FIRE BRICK ORDER RECEIVED.

The Longmont (Col.) Brick & Tile Co. recently received an order for ten carloads of fire brick for the Denver Tramway building. The plant was organized only last year.

## LOUISVILLE FIRE BRICK WORKS.

With a capacity of 17 down-draft round-top kilns the Louisville Fire Brick Works, of which K. B. Grahn is president, is one of the largest brick concerns in the Louisville district. Those who attend the annual conventions in Louisville next month will find a welcome when they visit this firm.

The headquarters of the company are at Highland Park, a suburb of Louisville. The works are located on the Louisville and National railway. There are five dry houses; two engine and boiler houses, these being built of brick; two machine houses of metal roof and 17 kilns. Fire clay is obtained in Carter county, 168 miles east of Louisville, and is hauled to the plant over the Cheaspeake and Ohio railroad. Some of the clay possesses traces of flint and other clay of a plastic nature.

The clay is obtained from the private mines of the company and from two other points. Some of the mines are worked in drafts and other regular mining operations. At times some of the clay is weathered and some is not, more or less of it is stored.

In the plant are two dry and five wet pans and two pug mills. The dry pans are 8 ft. in diameter and are of different makes. One 60-ton Allis-Chalmers crusher is used. Piano wire screens of the firm's own make are in constant use.

The clay is tempered by water. One 10-foot horizontal pug mill is used, a very little water is required. No sawdust is used. When the clay is molded it is of soft stiff character, but at times dry pressed clay is used. In transferring of the brick wheelbarrows are used. In the dryer, which is of the firm's own make, there are five floors. It is heated by steam, and an average of 24 hours is required for drying. Some of the kilns are 24 x 26 ft. and 10 x 14 ft. in diameter, the kilns are set to within three feet from the center. For water smoking coal and coke are used and for burning, coal is used. The consumption of coal for kiln firing depends upon the quantity of brick in the kiln. Kiln floors are open. There are two engines, one 175 and one of 140 h.p. Four flue boilers are used. The production of the plant is confined to fire brick and fire brick tiles, the boilers continue twelve months during the year.

This firm commenced business in 1890 with one dry house and two kilns and gradually increased its output and plant from one or two, to 17-kiln capacity. The annual capacity is 220,000 brick.

The officers of the company are: President, K. B. Grahn; Vice-President, C. A. Parker; Secretary, Charles E. Parker; Treasurer, M. P. Dehoney.

## STANDARD FIRE BRICK CO.

The Standard Fire Brick Co., which has offices at No. 1215 Empire Building, Pittsburgh, and whose plant of thirteen kilns is at Empire, O., entertains the view that the year 1911 will be very prosperous.

While the Pittsburgh offices are in charge of Charles Packer, the sales department is ably managed by John Swan, Jr., and these two men are kept busy looking after new business and getting out the orders already booked.

The plant at Empire is a comparatively new one. Only recently a 350 horsepower engine was installed of the Houston, Stanwood & Gamble type of Cincinnati. Their three boilers have a capacity of 125 horsepower each, while their Bonnot brick machines have a capacity of 40,000 blocks per day.

Not long ago the tunnel capacity was increased until now 375 cars can be easily handled. About 100 of these cars are of the Kopple pattern, while others are from the plant of the Ohio Ceramic Engineering Co., of Cleveland. There are four double tunnels and the brick are dried by direct heat, fires being maintained under the tunnels.

Two nine-foot dry pans of the Stevenson pattern are used, while a Richardson re-press has given excellent satisfaction.

Compressed air machinery is used in manufacturing clay flux and refractory blocks at the Woods-Lloyd Co., Inc., clay block plant in South Thirtieth street. The manufacturing of these blocks is the sole business of the company, and it is the only firm of the kind in the United States that uses such machinery for this purpose.

With molds in stock for nearly seven hundred different kinds of blocks, all of which are at times used in the building of glass house furnaces, tanks and pots, the firm is the largest single producer of this block product in the world.

For the flux blocks imported clays are used, and these are thoroughly mixed in a batch and then after being worked through Fisher and Frost pans are then sent through pug mills of the Wallace pattern. There are six of these pug mills, but the company has just invented one of its own that will have double the capacity of any two of its present mills.

After mixed clay is weathered for a seasonable time it is taken to the upper floors where the mold makers are at work.

Wood molds are used. One man throws several large lumps of clay into the mold and another workman starts the compressed air pounder or tamper which works at the rate of 120 strokes per minute. By this method the clay is pounded or tamped in the mold with greater strength than is possible by hand.

After the blocks are dried for four weeks, they are placed under a mechanical smoothing device where the fast revolving disks or plates level the blocks to a certain measurement, making them as smooth as possible. A feature of this method is that no clay is lost.

As the blocks are being smoothed the dust and particles of clay that come from the block are forced by suction to another part of the clay cellar, where they are used over again, and by this method all possible waste of clay is eliminated. The smoothing device is a creation of the company, and is the only one of the kind in use in the United States in this line of business.

There are a dozen kilns in this plant, and it takes a long time to fire them. As an illustration, a kiln that was lighted Nov. 18 was not ready for drawing until Dec. 28. Ten of these kilns contain about 80 tons of blocks while the other two will hold but twenty tons each. The kilns are fired at about 2,400 degs.

As clay blocks are made under an improved method at this plant, and as the company is the only one in the district making blocks by such a method, those who will attend the February convention will find it interesting to visit this factory. This plant is operated by electricity.

## BRICKMAKER GOES TO HAWAII.

Mr. Chester Carmichael formerly foreman of the Helena plant of the Montana Granite Brick Co., will go to Hawaii where he will supervise the erection of a brick plant.

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The Thornton Fire Brick Co., with offices at Grafton and works at Thornton, W. Va., have landed the contract for the 7,000,000 brick required by the Baltimore & Ohio for the new Kingwood Tunnel, which is to be one of the largest cross section tunnels on the continent.

# POTTERY NEWS

East Liverpool, O., Dec. 26.—Notwithstanding the fact that a number of industries of the country have not reached former records of production during 1910, it can be safely predicted that the American pottery industry is not in this class. Late year reports so far at hand indicate that the domestic pottery industry for the last year will show a total production of hundreds of thousands of dollars in advance of the best previous year.

Several reasons have been advanced as to the cause of this increase, but the two salient causes may be found in the following: First—That the United States is growing, and the demand for American-made goods is increasing. Second—The financial panic of a few years ago caused some of the largest dealers and jobbers in imported ware to retrench on import orders and place this new business with the American pottery manufacturer.

As a result of the latter policy, the English pottery manufacturer has complained bitterly of the business he has been doing in the "States." Imports from other pottery producing countries have also shown a decrease. The American pottery is working better today than ever.

Writing from an immediate observation, the American potteries are taking only from one to ten days "loaf" this December end, because of the favorable condition of their order books. In past years the American potteries have been idle from two to four weeks from December 15 to January 15. Not so this year. There are instances where pottery manufacturers in this district closed their plants but one day December 26 (Christmas) and worked New Year's (January 2). Other manufacturers were compelled to suspend for a longer term—to take stock and make repairs to machinery that were absolutely necessary. During the midsummer season there was not the idleness during 1910 that has been experienced in former years.

'Tis true, this is a most happy business condition, and it shows that American-made pottery is growing in demand, and this has put new energy into the business veins of the manufacturers, who, by the way, are producing a better grade of semi-porcelain today than ever before.

And the end is not yet.

### Stoneware.

Zanesville, O., Dec. 26.—Stoneware pottery manufacturers, not only in this territory, but throughout the country, have had a very successful year, so far as production is concerned but that the manufacturers could stand it to get more for their efforts is not denied by any identified with the trade. For several years the stoneware business has been in a more or less unsettled state so far as selling lists have been concerned. However, the "bull was taken by the horns" during the past twelve months, and the business has been placed on a more equitable and profitable basis.

The season has been a steady one, insofar as production is concerned; there has been little if any idleness in the stoneware shops of the country during 1910. That even better conditions than these will prevail during 1911 is a generally admitted fact.

Like the semi-porcelain pottery manufacturers, the stoneware people have to meet the competition of an imported piece of goods. The latter are laid down in this country at such a price that manufacturers could not make the same line of goods here, and remain in business, providing they had to sell at the same rate and pay the American wage.

But the exporting of American stoneware goods is constantly increasing, as statistics prove. For ten months ending Nov. 1, there was earthen and stoneware exported to the value of $759,417, as against $643,169 for the same term ending Nov. 1, 1909.

Locally production has been increased during the last year in this territory, which includes the Ironspot, Roseville and Crooksville districts.

Art pottery of the highest grades obtainable is made in this city and vicinity, and all of these art potteries have been working steadily throughout the twelve months. Some rich new specialties have been placed before the domestic trade, while the export business has shown a steady increase, the limits of which have not been reached.

### Sanitary and Porcelain.

Trenton, N. J., Dec. 28.—This district, which has for years led all other territories in the production of clay commodities, will have maintained this position during 1910, and this will be proved by the reports of the year, which will be available at an early date.

For many years Trenton and East Liverpool have been rivals for the leadership in this respect, and while the western city has wrested the laurels from Trenton in the production of domestic pottery, leadership still remains here in the production of electric, porcelain and sanitary pottery.

There has been so much building during the last year, and the use of sanitary appliances has become so much more general than in the past, that the production of sanitary pottery has been growing by leaps and bounds.

Trenton is also leading in the production of high grade china, and the treatments on this line, together with body, is quite superior to many of the imported lines. Time is not distant when the production of domestic china dinner ware will be more general in the United States, and in this respect Trenton is taking its place in the front rank.

Because of the growing use to which electricity is being put, the demand for electric porcelain goods is increasing at a corresponding rate. Every year more electric porcelain plants are being built, and while the production of this ware is being increased in this locality, the majority of the newer plants are being built in the West—in the vicinity of East Liverpool, O.

At Wellsville, O., announcement is made that the pottery now being owned by Smith-McNicol will be operated under a corporate name within the next few months. What name will be selected is not given. W. L. Smith, one of the original partners, has disposed of his interests and is devoting his entire attenion to the plant at Chester, W. Va., known under the name of Taylor, Smith & Taylor. The Wellsville plant is under the sole management of Albert Corns, while D. E. McNicol, who has a large interest in the Wellsville business, confines his time to the D. E. McNicol Pottery Co., East Liverpool.

Operations at the plant of the Novelty Pottery Co., Carrolton, Ill., have been suspended, so it is reported, and no ware will be made there until after the holidays.

The program for the annual meeting of the American Ceramic Society, which is to convene in Trenton next February, will not be announced until within a fortnight before the meeting. Edward Orton, Jr., principal of the Ceramic Department of the Ohio State University, Columbus, O., is secretary.

After studying aviation 12 years, William Trower, manager of the decorating department of the Taylor, Smith & Taylor plant, Chester, W. Va., has completed an air craft, equipped with a "patented" balance rod or weight, which will keep the craft from "tilting." When Trower was working in the potteries of England and Trenton he worked on his plans, but not until recently has he succeeded in forming a company to back him in constructing a craft.

Professor C. M. Knight and his assistant, Professor H. E. Simmons, are preparing to install the apparatus for the course in clay working and pottery work which will be started at Buchtel College, Akron, in February, if enough students sign to take the course. Several furnaces will be installed. The rest of the equipment, which will be more elaborate, will not be installed, as the pottery men of Akron have volunteered to allow the college people to use their apparatus for doing the work.

A change in the management of the manufacturing end of the Knowles, Taylor & Knowles pottery is announced and includes the resignation of William Cook as general manager, effective January 1, and the appointment of Thomas Anderson, general manager of the Edwin M. Knowles China Co., plant Chester, to that position.

Mr. Anderson will apportion his time between the Edwin M. Knowles plant at Chester and the Knowles, Taylor & Knowles plant here in this city.

That the Warwick China Co., of Wheeling, W. Va., will make translucent china for domestic use and vitreous china for hotel purposes, is one of the more important announcements made in the pottery trade during the last few weeks. The production of this grade of ware will be started within the next six weeks.

Charles E. Jackson, who is well known among the Trenton pottery manufacturers, and who has been making the china body for the Syracuse (N. Y.) pottery, assumed charge of the Warwick property January 1.

From time to time the Smith-Phillips China Co., of East Liverpool, have been experimenting with a translucent vitrified body, and while some excellent results have been obtained, no effort has been made by the firm to make china in bulk.

In the case of the Warwick, the firm will have new shapes in the dinner services and the vitrified hotel china lines.

Underglazes, encrustations and acid etched treatments will be featured by the Warwick, and the firm will be the third in the United States to undertake such treatments. Mr. Jackson, during the last summer, had a proposition up with the Board of Trade of Wheeling to buy the former Wheeling pottery plant and convert it into a vitreous china plant, but the financial condition of Wheeling was such at the time that the plans could not be carried through successfully.

At Evansville, Ind., an eight-kiln sanitary pottery has been built by the National Pottery Co., of Evansville. It is understood that the output of this new concern will be taken by the Peerless Selling Co., of that city. Evansville is making more sanitary ware now than ever in its history.

The Anderson Electric Porcelain plant, which was destroyed by fire at East Liverpool, has been rebuilt with an additional kiln, and has resumed operations. About 75 people are being employed.

In 1845 the University of Louisiana was founded at New Orleans, La., and in 1884 the name was changed to "Tulane University of Louisiana." In that year Paul Tulane gave $1,000,000 to the University, and soon afterwards a school of ceramics was established. This fact is not generally known. The Newcomb College pottery is now a part of this well known Southern university.

. The pottery made there is achieving fame. It received a medal at the Paris Exposition, and medals of merit at St. Louis and Buffalo, and a gold medal at Jamestown. The Newcomb pottery was established in 1886, and has been doing considerable in late years in advancing the Ceramics Art in America.

The casual reader has small idea of the volume of imported china porcelain and fancy goods imported into the United States, and which is being sold by the jobber, who is buying less of this production than heretofore.

During October there was an increase in the importation of pottery over the same month of 1909. Last October the value of all ceramic importations amounted to $1,215,563, and in 1909 it totaled $1,097,854.

Importations for 10 months in 1910 went ahead of the record of 1908, and considerably in advance of the record of 1909. Ten months importations in 1908 totaled $9,442,954; 1909, $8,930,864; 1910, $9,481,094.

There has been a decided decrease in the importation of French pottery. For 10 months this year the French only imported goods valued at $1,507,082 into the United States, while in 1909 importations were worth $1,546,787. In 1908, $1,495,387.

Austria has also steadily decreased its imports, and even the American jobbers of these goods have been complaining bitterly about the falling off in their business, and the dealers buying American ware instead. For 10 months in 1910 Austria-Hungary imported ware valued at $611,690 into the United States, and in 1908 it imported ceramic goods valued at $820,532. In 1909, however, the importations fell to $671,681.

Germany and Japan have increased their imports for the past 10 months, but on the whole year's business, the record will fall short of the importations of previous seasons.

While the imports have been increasing from foreign countries, it may be said that the American manufacturers are increasing exports. The record for exporting earthen and stone ware for October, 1910, is $104,683, and for 1909, $76,696. For three years of ten months each the record of exports follows: 1908, $806,967; 1909, $643,169; 1910, $759,417.

China—October, 1910, $10,262; 1909, $10,312. For ten months in 1908, $60,653; 1909, $67,986; 1910, $88,346.

It is believed that should this record continue, the exports of domestic pottery for 1911 will total over $1,000,000. a new high record.

Because of the demand made upon the manufacturing potters of the Ohio Valley by the Manufacturers Heat & Light Co., thereby compelling the pottery owners to pay more for their fuel, many manufacturers are expected to go back to coal for fuel early in January. Some kilns have already been prepared for this. During 1910 the manufacturing potters have had the price of gas increased one-third in cost.

The Ohio State Board of Arbitration has settled the differences existing between the stoneware pottery manufacturers of the Zanesville and Crooksville district and their workmen as follows: Common laborers, advanced from $1.60 to $1.75 per diem; clay puggers from $2 to $2.50; kilnmen from $2 to $2.50 and $2.75; jiggermen from $3 to $6; slippers from $1.85 to $2.25. About 700 workers are concerned in the adjustment of wages.

Efforts are to be made to locate a domestic pottery in Tennessee, for it is admitted by State Geologist Ashley that an abundance of clays are to be found in that state quite suitable for the production of domestic pottery. Considerable Tennessee clay is used by the Ohio potteries, both for a body and also a bond.

On the farm of J. E. Skandan, of Malvern, near Red Oak, Iowa, a deposit of clay, suitable for pottery manufacturing, is said to have been located.

The Trenle China Co., of East Liverpool, has placed two new kilns in operation, thereby increasing its production one-third.

There is reason for believing that the potteries of the New Jersey territory will have a greater production during 1911 than in past years. Orders for early January delivery are more liberal than heretofore experienced, so far as the domestic pottery lines are concerned, while the sanitary and electric porcelain business is constantly growing. A number of new kilns have been built in the district during 1910 and this has tended to increase the total output of the three lines.

The death of James Tams, the head of the Greenwood Pottery Co., of this city during the late fall, took from the ranks of the pottery industry one of its best known and greatly admired characters. He was at the head of the Greenwood China Co., as well as the Greenwood Pottery Co., both plants belong among the most widely known in the country, and at the same time the oldest.

The will of the late pottery manufacturer has proved to be a rather curious one. Its provisions insure the perpetuation intact of his business concerns, the Greenwood Pottery and Greenwood China companies and make compulsory on his six sons and their sons that they take a thorough course in labor at the pottery works, learning the business in every detail. This they must do to share in the estate. If they obey this provision handsome annual incomes are guaranteed them. But the estate is to be held without division for twenty years.

According to the will filed at Trenton, N. J., no grandson may aspire to a position of management in any of the departments of the pottery works while one of the sons is left alive to hold the executive job. This provision would prevent any son, if so minded, from starting a clique of his own sons in the executive branches of the business.

Upon the six sons and their sons is laid the warning and injunction that if any one of them shall reveal the secret of the long established pottery concerns or shall attempt to start a pottery plant in competition, his annual income shall be cut off immediately and he shall be cut off also from any share of any other portion of the estate or in the principal when it shall be divided after the passing of twenty years.

A trust fund has been created for the widows and daughters and all of the sons are to accept positions with the Greenwood companies. William H. is to assume the management and presidency of the companies at the wish of the father, who also makes the request that the other five sons work faithfully under his guidance.

At Sag Harbor, N. Y., a new art pottery is to be established by Charles Kiss, who has formed the Kiss Art Pottery Co., with a capital stock of $9,000. For several months Mr. Kiss has been experimenting on clays until he now has his system perfected.

Three additional kilns will be built at an early date by the New Jersey China Pottery Co. Several of the older kilns will likely be rebuilt.

Work rebuilding the burned portion of the Yellow Rock Pottery Co.'s plant at Philadelphia, which was partially destroyed by fire recently, is progressing favorably. The loss was placed at about $50,000.

The University of Pennsylvania has conferred the degree, Bachelor of Science, upon Francis B. Lee, president of the Trent Tile Co., as a result of his literary attainments since his graduation.

Disdainful of chair or workbench and seated on a blanket spread upon the floor in the middle of the inclosure representing one of the old Spanish Mission structures, which formed the exhibit of the Santa Fe Railroad Co., at the land show in Chicago, recently, Nampeyo, greatest artist of her race in the making of pottery, silently blended and spread the colors in decorative designs over the surface of bowls, jars and other utensils molded with her own hands.

This old Indian woman is practically the last representative of the artistic culture of a primitive people who inhabited the Southwest long before the old world had dreamed of a western continent.

For while her race for centuries back has produced pottery, startlingly resembling in line and decoration the most ancient Egyptian ware, the strides of civilization have gradually made themselves felt even among these people, closer to the aborigines than any other on this continent. The younger element has learned that the white man is not excessively discriminating and the bulk of the output today is made to sell and not with a view to durability and perfection.

## GIGANTIC PLANT TO BE BUILT.

Ground is being broken at Coal City, Ill., and plans have been made for the erection of a plant of titanic proportions. Several moneyed men are backing the deal, the report being that Pittsburg capital was employed.

The output of the plant will be brick, tile and pottery, and it is expected 1,200 men will be employed. Exhaustive soundings of the clay lands on which the plant is to be built, show practically inexhaustible beds of clay from 18 to 24 ft. deep. The clay is said to be free from gravel, and to possess unusual adhesive power. From this project Coal City will gain at least 2,500 inhabitants which will mean a boom in buildings both residence and commercial.

## NEW MACHINERY AT THE CLAY POT WORKS.

Several thousand dollars is being spent by the Clay Pot Works at Findlay, O., in the placing of new and costly machinery, erecting bins, and installing new elevators, crushers, pug mills, etc.

The clay will be conveyed by electric elevators instead of wheelbarrows; cement floors will be laid throughout the factory which with the other improvements places this factory among the best.

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The Raine Co. will double its output by the use of new machinery recently installed at their plant at Huntington Beach, Cal.

## SAND-LIME CONVENTION.

### Rousing Meeting at Detroit in Which the Principle of Mutual Co-operation Prevailed.

The American Association of Manufacturers of Sand-Lime Products held its seventh annual convention in the Wayne Hotel at Detroit, Mich., on December 6 and 7. There was a good attendance of the faithful and most successful brickmakers of the United States and Canada, all of whom participated in the proceedings, with the result, which is usual in this organization, that every member got what he came after in the way of information and a whole lot more in some cases. There was more enthusiasm at the time of adjournment than when the meeting was first called to order.

The experiences of the manufacturers, as expressed from every quarter, clearly demonstrate a most satisfactory condition of the industry. It is clear that all members of the association are making "mighty good brick," lots of them, and consequently at a profit. No little part of this felicitious condition is attributable directly to the co-operative work of the association, as attested to by many of the speakers.

A full budget of futher progress was mapped out for the campaign of the coming year, and with brighter prospects and a still brighter future ahead, the sand-lime products are more firmly established upon merit alone than any other parallel building material.

While the official proceedings of the association are held for the exclusive use of the members, by constitutional ruling, the following sketch will possibly satisfy non-members. (As a matter of suggestion, there should be no non-members among people who manufacture sand-lime brick.)

The meeting was called to order by President S. O. Goho in a forceful and graceful address, by which he opened the doors to all qualified to sit in the meeting, with a cordial invitation to "talk right out." Secretary Fred K. Irvine and Treasurer W. E. Plummer, Jr., read their reports, which were referred to the auditing committee. Later these were reported and approved.

The "Question Box," in which written queries by the members are brought before the committee of the whole for discussion and which has always proved of great interest and benefit, was introduced. It was later found impossible to take up this important feature owing to the press of other matters that crowded the minutes of the active session. The contents of the "Question Box" was referred to a new standing committee, of which the secretary is the chairman, and may be properly named the Committee on Official Information. In this way and by this committee the "Question Box" idea is broadened and made available all the year around to members of the association, who may need technical or commercial advice intimately connected with the industry. This is very progressive and practical—in fact, it places the American Association ahead of all industrial voluntary organizations in a very important feature that is worth dollars and cents to the members.

Walter Godart opened the subject of "Manufacturing and selling conditions compared from the local standpoint." The subject was handled ably, in detail, giving facts and figures as well as costs from actual records. Mr. Godart per se represented Minneapolis and vicinity. Supplementary to this subject, F. B. Allen, of Toronto; H. B. Skeele, of Savannah, Ga., and W. H. Crume, of Dayton, O., developed comparative differences of conditions.

H. B. Skeele took the chair for the confidential discussion of matters of particular interest to people in the industry. The Round Table was participated in by almost every member, and it was one of the numbers that several said was well worth all the price of admission.

The second day's session began with the subject of "What is the most satisfactory way of storing, shipping and delivering brick?" Opened by E. M. Loewenthal, with an able description of the methods he has developed in his face-brick plant at Rockaway, N. J. Supplementary to this, Mr. Godart, of Minneapolis; Mr. Jackson, of Saginaw; Mr. Findley, of Winnipeg; Mr. Allen, of Toronto, and Mr. Burchfield, of Rochester, each contributed valuable suggestions and gave full data.

L. W. Penfield took the chair for a Round Table session devoted to the "Improvements and Developments of the Industry." It was a very valuable part of the meeting, as it got right down to the technique of the handling of materials. Mr. Simpson, Mr. Plummer, Mr. Buchfield, Mr. Jackson, Mr. Berg, Mr. Bovey and others came into the arena prominently during the session.

W. E. Plummer, Jr., gave his second season's experience with the wet pan, being further developments in this new way of grinding sand.

H. G. Field opened the subject of "Hydration of Lime for Brick Making," taking for the same his own experience and gratifying economy. The matter was further discussed by Mr. Simpson, Mr. Emely and Mr. Jackson, and the usual differences of opinion on the lime question were in evidence. President Goho called on the executive committee by districts for their respective reports. All of these were most encouraging.

The following officers were elected for the ensuing year: President, S. O. Goho, Waltonville, Pa.; vice-president, W. D. Schultz, Brantford, Ontario, Canada; secretary, W. E. Plummer, Jr., Buffalo, N. Y.; treasurer, John L. Jackson, Saginaw, Mich. Executive committee: Eastern district, E. M. Loewenthal, Rockaway; N. J.; central district, L. W. Penfield, Willoughby, O.; southern district, H. B. Skeele, Savannah, Ga; western district, Walter Godart, Minneapolis, Minn.; Canadian district, F. B. Allen, Toronto, Canada.

Dr. James S. MacGregor, of Columbia University, New York; Warren E. Emely and Fred K. Irvine were elected honorary members.

### Annual Banquet.

Owing to the success of the banquet held at the last convention and the appreciation of the social side there brought out, it was by common consent decided that there will always be a banquet at future conventions—in fact, it is simply a nice little dinner where everybody can fraternize and relax the mind from what is otherwise a very hard working convention.

W. E. Plummer acted as toastmaster and the job fits him well, for he is himself the toast of the whole organization. There were just forty covers and that many appetites. The feast of things intellectual was participated in by the following gentlemen: Mr. Goho, "A Word of Welcome"; Mr. Loewenthal, "Down Jersey Way"; Mr. Godart, "Friends and Enemies"; Mr. Allen, "Caught with the Goods"; Mr. Findley, "The New Northwest"; Mr. Burchfield, "How It's Done;" Mr. Penfield, "The Poetry of Brickmaking"; Mr. Urschell, "Something New in Practical Enamel"; Mr. Carmichael, "Bricks Made from Lava"; Mr. Skeele, "On the Sunny South." It was one of those good things that everybody appreciated fully and gives the whole meeting a good taste to go with the other benefits.

### Exhibit Features.

Practically every member complied with the custom of the organization by sending in samples of brick and materials. The display was the best from every standpoint that has ever been presented.

Comes now the great surprise of the meeting. Enameled and perfectly burned sand-lime bricks and decorative tiles were exhibited by J. J. Urschell, of Toledo, Ohio, who, it seems, has been working for months in conjunction with W. J. Carmichael and the American Clay Machinery Company to perfect this wonderful process. Every member was deeply interested, for the exhibit was so comprehensive as to show that the plan is practical and out of the experimental stage. Mr. Urschell explained that his company is now building a plant near Toledo to make this product, and that all will have a chance to get into this branch as soon as the details can be worked out in a businesslike way.

## SAND-LIME BRICK INDUSTRY IN AUSTRALIA.

In the December issue of "Brick" we published a letter received by the International Sand-Lime Brick & Machinery Co., 90 West St., New York, from their customers in Australia, which spoke very highly of the machinery they had furnished and the services rendered them, through their Mr. Cummins, in the erection of the factory near Melbourne, Australia.

In this issue we take pleasure in printing the accompanying illustrations, showing the exterior of this factory, as well as the interior with one of the "International" Four Mold Presses in the foreground; also a cut showing the sand deposit and the manner of taking the sand from the same to the factory. As can be seen from the interior view, the brick made in Australia are much larger than ours in the United States, being 8⅞ x 4-5/16 x 3 in. With these photographs received here recently, the International Sand-Lime Brick & Machinery Co. received the following report:

"Everything here is going on very well. We are making the finest, hardest and best brick in the world. They have no equal in America, and we have struck the best lime we have ever handled. We have also made a few stones—just simply out of sight, for appearance and hardness, and cannot be beaten—and we expect to do a big business in this proposition alone. It is safe to say that within six months' time both factories (there is another one at Adelaide built by the International Sand-Lime Brick & Machinery Co.) will double their capacity, as the demand for the brick is so great that they cannot fill the orders."

This factory is turning out about 15,000 brick, Australian size, in eight hours and with the following use of material and labor:

One foreman, one engineer (does his own firing), one fireman (night watchman), eight common laborers, 52 tons sand, three tons of lime, three tons of steam coal, oils and waste amounting to about $2.00. Average for repairs, wear and tear, $5.00.

General View, Melbourne Plant.

The equipment of the factory, furnished entirely by the International Co., is of the regular Standard "A" Schedule, the same as they are installing in the Single Unit Factories in the United States. The plans and specifications have been prepared by this company, and the factory was erected under the supervision of their experienced engineer, Mr. D. W. Cummins, well known in the brick business.

Considering that the sand-lime brick industry in this country is but in its infancy and that the German manufacturers of this class of machinery had entered the field in Australia, it goes far toward proving the superiority of our American methods and machinery, that the Australian syndicate is placing additional orders for machinery for other factories in Australia with the International Sand-Lime Brick & Machinery Co., having also acquired the Australian patent rights of the "Division Method" for the preparation of the material, as owned and exploited in the United States by this company, and, although the German manufacturers are offering machinery at lower prices and, of course, had nothing in the line of a patented process to offer, the Australian syndicate, after a thorough investigation of the entire industry in this country and in Europe, finally decided to do business with the International Co., and judging from the letters received they are more than pleased with having come to this decision.

## THE GRANDE BRICK COMPANY.

This company is doing business in Grand Rapids, Mich., with factory and offices located on the P.: M. tracks and Kalamazoo Ave., in the south end of the city. It was organized early last year, has local and Saginaw stockholders, and a capital stock of $40,000.00, all paid in. The purpose of this organization was to manufacture brick from sand and lime. The factory is located on a sand hill which assures the company a supply of good sand for a great many years.

The buildings are all of brick made on the premises and the installation is the best that could be bought. The factory started operations on June 10, 1909 and up to December 24th of the same year, made and sold over 3,600,000 brick. This year they made and delivered over seven and a half million brick, with very good prospects for 1911.

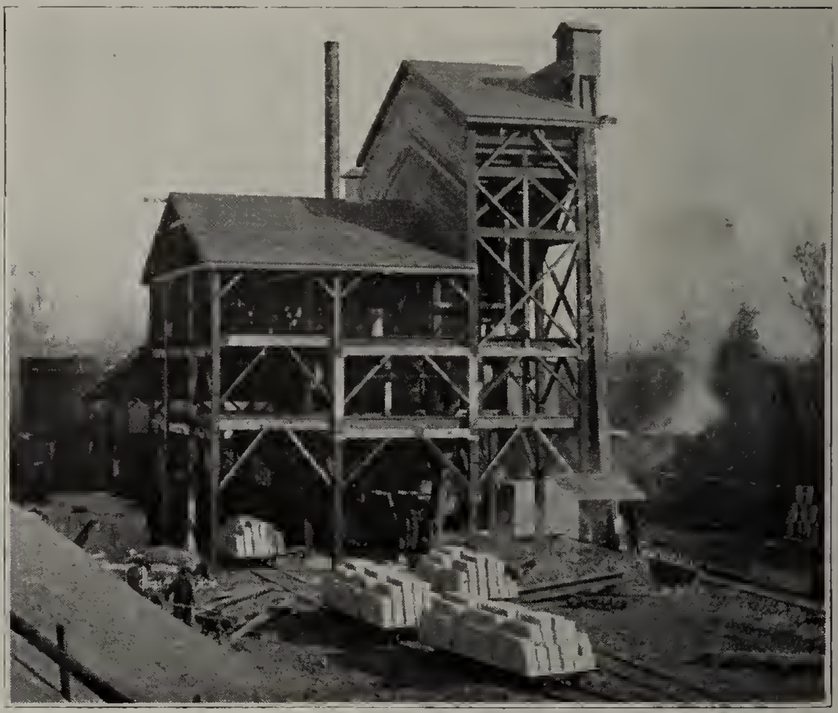
The capacity of the plant is from ten to twelve million a year. It is the intention of the company to increase its capacity early in the year to double its present output by adding another press and additional machinery. The brick have been used in almost all the large buildings put up in and near Grand Rapids since the factory was started. They have been used in the Elks Temple, Century building, Goodspeed building, the Miller & Slack building, all four stories and basement, the Herpolsheimer new ten story building and basement, American Seeding building, West building, the Killeau building, Winegars building, Furniture Exchange, Macey Furniture Co.'s new addition, G. R. & I. R. R. Co.'s freight and roundhouses, and a large number of other buildings in Grand Rapids, Otsego, Lowell, Pontiac and cities within a radius of 50 miles of Grand Rapids. The factory is making a good brick and has had to build up a trade in a territory in which it has been very hard to get the product introduced owing to a number of failures in the same line and the keen and close competition by the clay brick manufacturers and concrete producers. From present indications and orders booked for 1911, it looks as though the output of the plant would have to be increased very early in the year.

## NEW BRICK PLANT IS IN FULL OPERATION.

Three months ago construction was begun on the plant of the Sacramento (Cal.) Sandstone Brick Co., located at the mouth of the American River, and the factory is now in daily operation turning out beautifully true and artistic face brick, suitable for all building purposes. This factory was moved from Monterey, where it had been in operation for more than five years, during which time brick were supplied for many notable buildings throughout the state. Sacramento's future attracted the owners of the plant and local capital has been added.

The officers of the company are A. G. Metz, president, cashier of the First National Bank of Monterey; R. M. Beebe, vice-president, of the Ione Stone Company; A. M. Marks, secretary, and D. W. Carmichael, treasurer. G. W. Bostwick, for many years manager of the U. S. Brick corporation of Michigan City, Indiana, designed and constructed the plant and is the present manager.

The sandstone brick has made rapid strides in this country since the process was introduced from Germany about ten years ago. Brick show remarkable results in all tests for crushing strength, fire, frost, etc., and all manufacturers of them claim to be able to prove that age only tends to improve the quality of the brick. The U. S. Government is using them, many fine buildings from the Atlantic to the Pacific stand as monuments to the product, and the local company point with much pride to some fine buildings on this coast, including the Southern Pacific Hospital at San Francisco and the mammoth plant of the Pullman Car Co., now building at Richmond. The brick are a light grey color, and these, with buff colored brick, will be carried regularly in stock, also all kinds of fancy mold brick for trimmings. Besides brick, the company will manufacture architectural stone for trimmings, such as window and door sills, caps, arches, water-table, coping etc. The stone work is a reproduction of the famous oolitic lime stone of Southern Indiana, the best known and most used stone of North America.



Factory of Sacramento (Cal.) Sandstone Brick Co.

## NEW SAND-LIME PLANT.

In a recent communication from B. F. Westley, treasurer of the Pennsylvania Pressed Brick Co., Altoona, Pa., he says: "This company is successor to the Altoona Pressed Brick Co., which removed to its present location at Grazierville, Pa. It is a combination dry-pressed red shale brick plant and sand-lime plant. We have excellent shale and sand in large quantities upon the property. At the present, however, we are developing particularly the shale end of the proposition. We did not get started until the first of September of this year, since which time the plant has been running steadily. We have not yet our full kiln capacity, but do not expect to add to the same until spring. In time we expect to develop the sand-lime end of the proposition. The season is largely over here, although there are still some prospective operations of fair size, the prosecution of which will depend largely on the sort of winter we may have."

## READY FOR OPERATION.

The Massachusetts Sand Lime Brick Co., has nearly completed its new plant at Oxford, Mass., where they will engage in manufacturing sand-lime brick. The plant will be a single unit system with a normal capacity of 20,000 per day, so arranged that the capacity may be easily doubled; 2-250 H.P. boilers and 1-150 H.P. engine furnish the power. Mr. Ryan, the proprietor, recently attended the annual convention of sand-lime brickmakers.

## Encouraging Letters from Leading Clay Manufacturers

**Ed. Rolfe, Cherokee Brick Co., Macon, Ga.,** says: "The brick business for the past year has been good and the prospects in sight are better for the coming year."

**A friend from Missouri "shows us"** as follows: "As to the situation in our locality, would say that while there is considerable material moving, competition is very keen, and matters seem to stand in a condition of uncertainty."

**An interesting letter from J. M. Ireland, president and manager of the Las Vegas (N. Mex.) Brick Co.,** states as follows: Regarding the business of the past year and the encouraging prospects for the new year, I am, I think, in the class of the man who, when asked if he was a grammarian, replied no, he was a Missourian. Will say in the first place that your efforts to be of service to the brick industry are highly appreciated, and sincerely hope the consolidation with the Clay Record will not only double the service to all the clay interests, but bring you many times more than that in financial returns. A letter from the Raton Brick Co. shows that they are preparing to meet the demand that we all hope the new statehood will bring to all industries down the Santa Fe line. In the town of French, where they are installing a large irrigation system, they use cement block. Maxwell City has been doing some building in the past year, and as they used Las Vegas face brick I can truly say the buildings are a credit to any town. Wagon Mound, also Springer, shows great improvement, but as this is the land of adobe brick, with or without straw, the brick manufacturer is working against a building material that dates back to prehistoric times, but New Mexico is growing. New Mexicans are broadening in thought, awakening to the fact that they must take opportunity by the forelock (it is bald headed behind). The outlook for Las Vegas is the brightest in its history. The Camfield irrigation works, which is supposed to water 15,000 to 17,000 acres of land, should be completed within the year. Santa Fe has been building up the past year, but as the penitentiary has a brick plant, the brick manufacturers are up against it, and as all of us would rather make brick outside, we have not as yet broken in the pen to put a stop to that work. Albuquerque, a good live town where we ship many face brick, has improved much in the past year, especially in the building of residences."

**H. E. Myers, Farmington, N. Mex.,** says: "The brick business has been good here this year and the prospects for next year were never brighter."

**W. E. Dunwoody, Standard Brick Co., Macon, Ga.,** in a recent communication, tells of conditions in the south: "Business in Georgia and Florida for the past year has been good. The prices have been off on account of the fact that the brick manufacturing is being overdone in our state. I have had considerable benefit and direct results of the work done by the Brick Building Association of America and recommend it to every brick manufacturer who wants to do business on an aggressive scale. My advertising account this year has been three times what it ever has been before and my sales have been greater than I have had in any previous years, notwithstanding the fact that, as stated above, there are too many brick manufacturers in Georgia for the business. Of course the result has been that a great many of these smaller manufacturers have had to suffer in the volume of business. My face brick sales have increased materially and I expect to be able to report in twelve months that I am selling more face brick than any other concern in the southern states. I occupy that enviable position relative to the common brick business already. This year my business will approach 80,000,000. Our average is gaining in popularity every day and we feel very much encouraged as a consequence. The South is gaining in population and wealth daily and Georgia offers the greatest opportunities possible in agriculture, which is the basis of all true success. We never know a total failure of crops and seldom a partial failure. Our land is cheaper than any desirable land in any other state of which I am advised and yields as much per acre in dollars and cents. Our climate is delightful. Getting down to local conditions, we have recently started a movement to move the capitol of Georgia from Atlanta, Ga., to Macon, Ga., and the entire state has taken it up. We believe that in less than two years Macon will be the capital of the Empire State of the South. I hope to have the pleasure of meeting the brethren at Louisville in February and especially of meeting the representatives of 'Brick.' "

**E. L. Roberts, secretary of the Beebe (Ark.) Brick Mfg. Co.,** writes as follows: "Relative to the conditions of the brick business in this territory will say that same was very satisfactory and encouraging during the now past season; so much so that we are making all necessary arrangements to run our plant on full time the coming season, fully expecting the demand for our output to run far ahead of the supply. We have an exceptionally fine territory for common building brick, and a clay second to none for that purpose. We have enlarged our plant and will install some new machinery and will in every way be better equipped than heretofore. Every brick manufacturer should read 'Brick.' "

**R. G. Eisenhart, Gen. Mgr., Horseheads (N. Y.) Brick Co.,** says: "Our business the past year was satisfactory and we have no reason to think that conditions will materially change in the near future.

**The Excelsior Brick Co., of Menominee, Wis.,** report on business conditions, saying: "We have had a very good year, our output being about seven million brick; prices are satisfactory and sales good. The outlook for the coming year is favorable, as we look at it."

**T. Marston, sales manager of W. L. Macatee & Sons Co., Houston, Tex.,** says: "The prospects for the coming year are excellent and we venture to say there have been more large buildings put up in Texas during the last year than in any other two previous years put together, but we feel confident 1911 will show a large increase over 1910."

**The Brazos Brick & Tile Co., Rosenberg, Tex.,** says: "In regard to the situation and prospects for the coming year in this part of the country, will say that they have been good and we are looking forward to a good business in 1911. This part of Texas has been prosperous this year and therefore the improvements are many, especially in the building line, and brick are being more generally used than formerly."

**The East Peoria (Ill.) Brick Co.,** in a recent communication, gives a cheering prospect as follows: "The demand for brick in Peoria and vicinity is much greater than the yards can supply, and the prospects look very bright for the coming year."

**Stephens-Adamson Mfg. Co., Aurora, Ill.:** "The gradual increase in cost of labor all over the country has caused large users of labor to install, wherever practical, machinery for handling material, which heretofore had been accomplished by hand labor. The increase in the output of industries which can handle their product by machinery in place of the old time method of hand labor, justifies the expenditure of the necessary mechanical appliances. Where competition in any one line is particularly keen, making it necessary to market a product at a small margin of profit, it is absolutely necessary that the cost of production be reduced to the minimum."

**Jno. J. Moroney, president of the Chicago Brick Mach.**

Co., is an example of "a man to the business born," as since the age of 13 years, when he began work in a machine factory, he has been actively engaged in the brick manufacturing business and is personally acquainted with practically all the prominent brick manufacturers in the country. In a recent interview he says: "The inquiries for machinery in the past sixty days have more than exceeded those of the preceding eleven months." He says the demand, over the country for brick seems to hold up well, with an especially noticeable demand for hollow building block, which is now being made especially prepared for receiving an outer covering of stucco, which has become so popular. This line is one which the owners of small country brick plants might profitably engage in manufacturing. The drain tile field shows remarkable activity, especially in the central and western states, as is evinced by the inquiries for machinery from Missouri and Iowa and other western states.

**In a recent letter Victor Cushwa, of Williamsport, Md.,** says: "Brick trade here and hereabouts has been unusually good. Our "Conococheague" Brick and Earthenware Co. has had an unusually fine year. Building has been active and from present outlook it will be perhaps better in 1911. This is the condition well over our state and the adjoining plants in Pennsylvania. Brickmakers are improving their products by careful making and burning and are attracting builders by a more superior article. We notice a very great improvement in substance and beauty in bricks which is and must attract contractors and builders. Last, but not least, better prices are resulting from the improved product."

**New Buildings in Baltimore.**—The Baltimore (Md.) representative of the Hydraulic-Press Brick Co. reports the past year one of the most prosperous in their history. More than the usual number of buildings have been built in Baltimore and future prospects are excellent. Among the many buildings put up this year are the Emerson Hotel, Fidelity Trust & Deposit Co. building, Union Station, News building, Blind Asylum buildings the Emerson warehouse, Mercy Hospital, buildings at Bay View Insane Asylum, three large school houses, Boys Country school, Falconer warehouse, Homewood apartment house, buildings at Johns Hopkins Hospital, and over 2,000 residences. With the exception of the residences, all these are large buildings, costing from $300,000 up, and with the exception of the Union Station are built of brick and terra cotta, which leaves brick still in the lead for building purposes. The Hydraulic has had its share of the "plums" and has every confidence in the future of brick.

**Baltimore, Md.**—The use of brick for construction work in Maryland is rapidly gaining ground, and concrete is being placed in the "also ran" class. In commenting upon past conditions to a representative of this trade newspaper and peeping into the future of the trade, Alfred Tyler, sales manager of the Hydraulic Press Brick Co., of this city, said:

"My opinion is that the prospects are good for Baltimore, and 1910 has been the best year in the building business that Baltimore has ever known.

"The substantial buildings going up and the class of buildings demonstrates that the building business in Baltimore is on a sound foundation and not of the speculative character that we have heretofore known.

"The opening of spring should show a large number of buildings in the business section under way, and as a large number of school houses and engine houses are to be built, Baltimore is to be congratulated on the prospects for 1911.

**"Prices of material keep up fairly well and brick appears to be used almost to the exclusion of other building material. No concrete building of any size has been built during 1910, and, with one exception, none are contemplated for 1911. The 'News' building, built about five years ago entirely of concrete, is to be torn down and an eighteen story office building of brick is to be built."**

**Good Brickmaking Season.**—This season has been one of the best the brickmakers at New Britain, Conn., have had in many years. The production this year was approximately 84,000,000, about 9,000,000 in excess of other years.

**Favorable Season in Connecticut.**—The brick manufacturers at Middleton, Conn., are all agreed that the past summer has been one of the best seasons for their business which they have ever experienced. The continued warm, dry weather, which has prevailed even up to late in the fall, has been simply ideal for the brick making trade. The brick manufacturers all report very large outputs from the yards this season and state that the prospects for next season are unusually bright.

**Geo. E. Hoffman, agent, Monument Pottery Co., Trenton, N. J.:** "The crop of high prices while apparently well founded can readily be discounted by the fact that manufacturers everywhere are busy and wages are higher and paid regularly throughout the country. The American manufacturer has enjoyed to its full extent the protection of tariff on material other than commonplace necessities. The greatest help to general prosperity is the restoring of absolute confidence of the people in the administration and in the ability of American people themselves to continue in this prosperity.

**The Wabash Brick Co., Terre Haute, Ind.,** large manufacturers of common building brick, which makes a bright red sand-molded and semi-vitrified brick, has had the most successful year's business in the history of their institution, while future prospects seem very bright. With them an order almost invariably means a repeat order will follow. They note a strong tendency in their state toward brick construction since there has been much publicity in the way of pleasing and attractive brick architecture. The people are becoming educated along new lines in building which indicates that brick will soon be riding the highway of prosperity. However, there is room for much more work in the line of publicity in this great industry.

**J. D. Minick, of the Mount Airy (N. C.) Brick Co.,** reports that the demand for building brick during the past year in his section of the state has been strong, and fair prices have prevailed. The outlook for the coming year is good, the tendency of builders being towards the substitution of brick where lumber has been used heretofore.

**J. C. Carsons, president of the Carson Brick Co., Charlotte, N. C.,** shows his optimism in the following: "The past season in the two Carolinas has not been up to the average, owing to the fact that the cotton goods business has been depressed, and that the cotton mills are the largest consumers. Some are disposed to think the coming year will not be as good as this has been in our line, but we think it will be better and shall make preparations looking to this end. We are intsalling a furnace to give us direct heat for drying, as our drying facilities are not equal to our making and burning and we are not getting the results we should. We have the reputation of making the best common building brick in this section, and expect the quality of our product to sell our output. We think we have the best brick man in the country as our superintendent, Mr. Chas. C. Davis, of Gallivan, O., who was formerly with the late P. L. Youngren.

**A. T. Griffin, manager, Wayne Brick Works, Goldsboro, N. C.,** thinks the outlook for the brick business during the coming season is very favorable there.

**C. S. Adams, president of the Adams Bros.-Paynes Co., Lynchburg, Va.,** sees conditions as follows: "We are in receipt of your favor of the 12th inst., requesting us to write you in regard to business for the past twelve months, and also our prospects for 1911. We are very glad to advise you that 1910 has been very satisfactory. We have made and shipped from our works here approximately 13,000,000 brick with few complaints. The indications for 1911 are that there will be considerable building here. We only make common brick, and depend on the north and west for supplying us with face brick."

**Morgan Brick Co., Norristown, Pa.,** report the following: "The brick business has been good in this locality the past season, and we expect to add two kilns and an open-air dryer. The prospects are good and we will double our capacity so as to be able to take care of our share of it."

**Melvin & Peterson, manufacturers of press-brick at Bradford, Pa., say:** "The prospects in this section are fair for the coming year."

**C. E. Foster, president and general manager of the Kittanning Clay Products Co., Bradford, Pa.,** informs us that the company manufactures 10,000,000 white impervious gray brick per year. They are also operating a plant called the Upper Kittanning Brick Co., which has a capacity of about 7,000,000. For both lines of this brick there has been a steady and strong demand during the entire past season, and the prospects seem bright for the coming year.

**E. F. Knight, sales manager of the Bradford (Pa.) Pressed Brick Co., says:** "We will manufacture approximately twenty million brick during the present year and will dispose of nearly all of them. Shipments and new business were very good up to about two months ago when a very considerable recession was noted. We expect to run steadily during the winter months and hope to have a sufficient stock on hand at the beginning of the building season next year to take care of our customers in a satisfactory manner."

**H. S. Miller, of the Darlington (Pa.) Brick & Mining Co.,** thinks the outlook for the coming year bright, but not quite as good as last year.

**R. A. Doan, of the Nelsonville (O.) Brick Co., says:** "Business in our line this year has been much better than last, and the stock we will carry over is very small in comparison with last year. Indications, so far as we are able to see, are good for next year."

**C. H. Forry, president and manager of the Hanover (O.) Red Pressed Brick Co., says:** "Business has been about the same as one year ago. While the outlook is better at this time than it was a year ago, yet it is hard to tell what next year's business will be. We are running every day and expect to keep it up all winter."

**The Wheatley Pottery Co., Cincinnati, O., says:** "Business has been keeping up fairly well during the last few months. The only complaint we have to make is that collections are very slow. We are of the opinion that prospects for the coming year are very good."

**C. M. McQueeney, of the McQueeney Clay Co., Akron, O.,** states: "The situation of the clay industry in Akron is highly prosperous. The Summit China Co. is running full time and the stoneware shops are also running, although the strike of the jiggermen is not yet settled. The brick yards of the city cannot fill their orders and a genuine building boom is now on in Akron due in a large measure to the rapid and tremendous growth of the many rubber works of the city. The Cooper Brick Co. have recently erected two 30 foot down draft kilns for the burning of shale pavers and red, wire cut face brick. They are turning out a very fine product in both the pavers and face brick. The Windsor Brick Co. are rapidly rebuilding

(*Continued on page 92*)

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### THE CHICAGO SITUATION.

Chicago, Ill., Dec. 23.—Never in the history of Chicago have the indications been more propitious for the clay manufacturers and dealers. The year just closed has marked a new era in the demand for clay commodities of all kinds in this city, and the fact has been demonstrated to a far greater extent that Chicago as a consumer as well as a manufacturer of clay products, has given the most notable evidence. She has come out with colors flying, and there is every reason why the local clay manufacturers and dealers should feel gratified and sanguine as to the new year.

In 1910 building permits were issued in this city amounting to $96,000,000. Many of these permits were for structures that have already been erected or that are under way, and the remainder will soon become a realization. This, then, makes the highest record thus far attained for building in any single year here. As Chicago is a great user of clay products, considerable of this amount was used in this way, and the result is to be seen on every hand. However, it is confidently believed, from the indications thus far noted, that the year 1911 will be even more notable in this respect, and that there will be an increased number of buildings erected before the close of the present twelve months.

There has been considerable discussion of late with reference to limiting the height of the buildings here to 200 ft. The present limitation is 260 ft., which makes it possible to construct a twenty-one story building. The new limitation would reduce this to sixteen stories. There has been some very spirited action on the part of both the opposers of the change and those favoring it. Some of the advocates of a change desire that the entire limit be removed as it is in some other cities. The council has as yet taken no definite action on the matter, and probably will not for some time. The real object in changing the present law is to improve conditions in the down-town loop district. After all that has been said on the subject, it appears that there would not be very much gained by the change that would relieve the congested situation in the down-town district.

Anticipating a possible change in the law, there have been a number of permits taken out for large structures in the loop, and it is quite likely that there will be others taken out in the near future. Mandel Brothers will soon begin the erection of a large building at the northeast corner of State and Madison. It will be quite elaborate and will be 16 stories high. The new Otis building, to be erected at the southwest corner of LaSalle and Madison, will soon be undertaken. It will cost $3,000,000, and will be 21 stories high. This is reported to be the most elaborate structure yet to be erected in Chicago. The Insurance Exchange building, at Jackson boulevard and Sherman street and Fifth avenue, will be constructed with white enamel terra cotta and white enamel brick. It is to be 21 stories high and will be a notable addition to the skyscrapers here. The Monroe building and the new Hamilton Club building will be under way in the early part of the year, as well as a number of lesser buildings in the center of the city. Many of these are constructed for the most part of terra cotta and brick.

There has been a large number of apartments and residences erected in the past year and a considerable portion of factory buildings. It is believed by some that there will not be quite as large a percentage of apartments erected during the present year as there were last year. However, the indications do not favor other than a very flattering year for the clay men of Chicago and that is how they all view the matter.

Preparations are well under way to celebrate the meeting of the Middle West Clay Manufacturers at the Palmer House. The local clay interests feel a personal pride and a delight in entertaining this gathering, and no effort will be spared to show them a royal time. It takes the Windy City clay men to do this, and there will be no cause for regret on the part of any of the visitors when they return home after a stay here. This fact is well understood by the average clay man, and it will give him an opportunity to see for himself what Chicago is doing to develop the clay idea in all forms of construction work. In this respect she is among the leaders and the future will see her making still greater progress along these lines of endeavor. Her citizens are a clay-loving people, and they intend to do all that is possible to continue along this line in the years to come.

A visit among a number of the brick and clay operating concerns found the situation very pleasing. Not only has the past year been one of unprecedented activity, but the future promises well, and a number of the brick plants here intend to operate during the greater part of the winter. This will be necessary, because there has been so large a demand for brick that the supply now on hand is lower than it has ever been, and so low that it requires renewed efforts to keep enough in hand to meet the daily demands. The conditions have never been more gratifying, and the fact that building operations are being continued so far into the winter with so large a number of structures under way is the most favorable indication that there will be a very active year ahead.

At the office of the Illinois Brick Co., Secretary Potter said that they had been very busy during the year just closed and that they have really done a larger business than ever before in their history. The stocks of brick on hand now are very low and they are still operating some of their plants in order to meet the demand at this time. He was confident that the coming year would be one of the best possible from the brick man's viewpoint, and was very much pleased with the situation as it appears at this time. They have done a large business in 1910, but they feel that the new year will be even more notable as a year for building brick.

The Carey Brick Co., through Mr. Sullivan, stated that there was much to feel gratified over, as they had been doing a most pleasing business in building brick. He said that they had made all the improvements in the plant that they contemplated in the near future, and that they had one of the most modernly equipped plants in the country. They were still operating and expected to the greater part of the winter, provided the weather continued at all favorable. They had been endeavoring to keep abreast of their orders for brick, but it was a somewhat difficult problem, as the demand had been so great in the past few months. The indications, as far as he could see now, favored a most active demand for the present year.

The National Brick Co. have found the demand for both building and sewer brick to be very large, and say that there is every indication that the new year will prove a helpful one. President Weber stated that there had been orders for about all the brick they could manufacture, and he was satisfied that there will continue a fine demand for the same in the next six months at least. He said that they were confident that there would be a big demand until July at least, and naturally he was not worried about the coming months. They are still operating their plants to keep up with the present demand for brick.

The Bonner-Marshall Co. report that they have enjoyed a very gratifying year for face brick and roofing tile. In fact, the past year has been productive of the most notable business they have ever enjoyed. The coming year seems to offer very favorable indications and unless they are mistaken, they will have all they can do in the next twelve months. It is quite probable, according to their view, that the prices will advance on face brick during the next few months. This has been made possible from a number of causes. Mr. Sylvester Marshall is still confined to his home, not having fully recovered from the operation performed some weeks ago. He expects to be at his office soon after the first of the year.

The Jenkins & Reynolds Co. have been doing a fine business in face brick. Mr. White said that they have been having a most gratifying business in face brick lines and that there was every reason to hope for a good demand in the new year. Conditions had been very pleasing with them, and they are content with the amount of business done and with the prospects for the new year. Chicago is more particular as to its selection of brick, said Mr. White, than even New York, and there has grown up here a desire for the best and only the best in selected face brick, which is a most pleasing indication of the tastes of the people.

The S. S. Kimbell Brick Co. are very much elated over the past year's business and over the indications for the new year. They have had the largest year in their history for face brick and see only a very pleasing demand for the coming twelve months. They look for a demand that will really surpass the past year in point of volume. They are large handlers of face brick.

The Chicago Hydraulic Brick Co. note that there has been no decline in the demand for face brick. Mr. Varney said that there was at this time the most favorable indications for the business and that the past year had been the best they have ever experienced. They could not wish for a more favorable year than they had just passed, and still the indications were that there would be another equally as large, if not larger.

The Thomas Moulding Co. report that there has been no reason for other than a very gratifying statement. Mr. Moulding said that there had been a very flattering call for face brick with them and that the indications did not look other than pleasing for the new year. If the demand continued as favorable in the new year as it had in the past twelve months, and there was no reason to feel otherwise about it, then there would be no cause for complaint on the company's part. The indications for face brick were pleasant indeed for the Chicago market.

President Reed, of the Chicago Retort and Firebrick Co., said that in the past year they had done more business, had increased the number of their customers and had more satisfied customers than they had ever known before. This was the most favorable report that they could make as to the past, and the future looked very pleasing for fire brick and other fire clay products. They have made a number of improvements in their plant in the past year, and are now in a position to increase their sales, as they confidently expect to do during the coming months.

The Wm. Dee Clay Product Co. are very much elated over the business done in the past year and say that there is every reason to feel hopeful as to the future. Their three plants have been augmented with new equipment and otherwise made more effective from a productive point, and they are going ahead to make this a banner year. They are confident this will be realized, and they are doing all they can to realize it.

The Masons' Specialty Co. say that there has been a good demand for sewer pipe, flue lining and kindred clay products, and they are very much pleased with the indications for the new year. There has been enough in the past year to make them feel hopeful for the new year, and if the past is to be a guide for the future, there will be no cause for regrets.

## OUR EASTERN LETTER.

### Unfortunate Condition in the New York Market—The Proposed Co-operation Plan.

New York, Dec. 22.—Benjamin P. Wheat, an associate of Senator Edgar T. Brackett, of Saratoga Springs, N. Y., has given "Brick" the first exclusive statement regarding the plan to reorganize the brick manufacturers of the Hudson river district of New York. The statement follows:

"The proposed plan involves the formation of a co-operative bureau of information with the necessary officers elected from among the membership and with a manager and assistant to carry on the active work of the association.

"The rating of the several yards of the members would be according to their present capacity for producing brick. (This rating, of course, would be conducted by a committee selected from the membership after organization). The purpose of the rating would be to determine the membership fee.

"The idea of the co-operation would be for the manager to establish a New York office where he would secure full information regarding the brick manufacturing and selling business, as well as information concerning the use of building materials in general. This information would be distributed to the membership by letter or pamphlet or otherwise.

"This manager would also be able to give such information regarding the market conditions as would keep the market from being overstocked at any one time and thus prevent delays and the holding of barges for long periods of time owing to the glutted market. His information would also be available and valuable to the manufacturers in determining the amount of their production.

"It was also thought that the manager who would be selected with this in view would be able to advertise and promote the use of brick of the association members, and thus increase the consumption of brick where now other materials are used. It is believed by the association members that while cement has a very proper place in the building materials trade, it is being exploited for some lines of building and construction where it has no proper place. Moreover, it was felt that by proper advertising the superior quality of Hudson river brick would be brought to the attention of the building trades and the consumption through this means would be greatly increased.

"It was not the purpose of the plan to interfere in any way by agreement or otherwise with the right of any of the members to manufacture as many brick as they saw fit to, or to prevent their selling to whom they pleased, or through whatever agency they pleased, or at any price they saw fit to sell.

"But through this association, having a given office and executive head, much could be done for the individual members, and therefore for the associate membership to alleviate some of the rather distressing conditions in the brick industry which now exist. Moreover, by having once gotten together in such an association, if other organizations should attempt, as they have in times past, to regulate the prices to be paid for the product, concerted action might be taken to oppose any such movement. There were other features in the plan, but these are its essential ones.

"The connection of Senator Brackett's office with the matter was merely a legal one," continued Mr. Wheat. "We entered into an investigation of the present conditions at the request of some of the brick manufacturers in this section, and drew up a proposed plan. Some meetings were held with a view to determining whether a successful organization could be worked out. Some of those approached on the subject were enthusiastic and more than 50 per cent of the manufacturers expressed their intention of taking hold of such an organization.

"However, there were some of the larger manufacturers who had interests in the selling and retailing of brick as well as in the manufacturing end, and it was thought by these manufacturers that their interests might be brought into conflict with those who were engaged solely in the manufacture of brick and their support could not therefore be obtained."

### Proposition Still a Live Issue.

Mr. Wheat is authority for the statement that the proposition is still a live issue. Negotiations are now on foot for overcoming the objections of these large manufacturers.

"Brick," in a recent issue, told of the success of the advertising campaign conducted by the Building Brick Association of America, which has rooms in the Flatiron building, this city. This is conducted on a profit sharing basis and, according to a statement made this week by H. J. Lee, secretary and advertising manager for this association, the results have been wonderful. "There are instances without number," he said, "where brick has been used where the prospective builder contemplated using cement. We have no trouble in convincing our correspondents that brick is the more durable."

The advertising feature in connection with the plan outlined by Mr. Wheat appeals strongly to a fair proportion of the brick makers of the Hudson river. If one brick advertising venture succeeds, why not another?

"If you want any proof that such an organization is needed," said a progressive manufacturer this week, "look at the quantities of brick that have been dumped upon this market at the dullest period of the year in the building market. In consequence the price has dropped to $4.75, and do you suppose the manufacturer can make any money with sales at that rate? If we were to organize as an advertising association, with the object of dividing the results on a profit sharing basis, a proportion of profit assigned in exact ratio to individual plant capacity, there would be no curtailment of individual privilege, the demand for brick would be increased and the price would be more within reason."

### A Sick Market.

Common brick throughout the east is in a sick market. Overproduction is the cause. Hudson Rivers today are bringing only $5 a thousand at dock. Raritan river brick are not being quoted in this market and dealers in Newark are getting only $6.75 a thousand on yard. Hackensack river common brick are being sold by makers at $5.50 a thousand to local trade only. Not a Hackensack river brick is coming into New York nor even into Newark, only 15 miles away. Connecticut common brick is also meeting exclusive home consumption at $5 to $5.50.

"Brick" is able to state authoritatively that the total number of brick on hand up the Hudson river, destined for New York City and vicinity consumption this winter and early spring, will be approximately 275,000,000, which is about 65,000,000 more than there was on hand last year at this time. The official count began this week and reports will be available on or about the middle of next month. The above figure is supplied by counters who have covered the field for the last twelve years. Hackensack has about 15,000,000 in reserve for this winter's needs. Raritan river companies have about 30,000,000 selected commons but the palet yards are still in operation.

Front brick in this market is in less demand, although inquiry for deliveries after the first of the year are for large quantities. Some idea of the extent of this activity may be gained from a statement made to "Brick's" correspondent by E. M. Houghtalling, of the firm of Houghtalling & Wittpenn, distributors for Kittannings, many of which they make at their own plant at East Brady, Pa.:

"When we opened our plant at East Brady," said Mr. Houghtalling, "we planned to make only grays there. So great has been the demand for whites that the Kittanning plant has been overtaxed and in consequence we are going to use part of the new plant to manufacture whites after the first of the year."

Prices for this kind of brick have receded within the last ten days. The cause is ascribed to the usual curtailment of new business that features the close of the year. Keener competition and underselling in some quarters in this city is responsible for it. Even the following prices are not strictly observed by one or two companies but they show the range. Croton points still bring $12.50; buffs No. 1 are quoted at $20 to $26, a drop of $2; grays of various shades and speckled bring $24 and $31, the same as heretofore; Kittanning whites, No. 1, are quoted at $25 and $29, a drop of 50 cents and $1; while No. 2's bring $21 and $24, as compared with $24 and $26 paid two weeks ago. Old golds are still quoted at $26 and $32, and Trenton and Philadelphia reds are quoted at $23 and $25, whereas a few weeks ago they were as high as $25 and $28.

The American Enamel Brick & Tile Co. and the Sayre & Fisher Co. are finding a fair inquiry for enamel brick for interior work and evidences of an awakening to the advantages of this kind of brick for certain facade purposes. The actual demand at present is lighter than it has been in six weeks, but it has not fallen away sufficiently to affect prices which remain at $70 to $75 for English size, $60 to $75 for American sizes, with seconds available at $45 to $55.

Terra cotta interests in the East are apparently well satisfied with the amount of business they are doing at this time. The Atlantic Terra Cotta has been making a splendid showing in the amount of new business taken. Mr. Putnam said:

"We have nothing to complain about. Here's an order we have just contracted for. It covers the new Knickerbocker Trust Co. extension in lower Broadway for which McKim, Meade & White are architects, and then we are just beginning shipments on the Vanderbilt hotel for which Warren & Wetmore are architects for the polychrome trim. We have enough business in hand and in sight to keep our plants in operation to within 75 per cent of capacity."

The New Jersey Architectural Terra Cotta Co., the National Fireproofing Co., and the Great American Clay Co., and others, also report encouraging conditions. There has been no change in prices. Fire brick is not in a strong market here.

### 1911 Looks Like Banner Year.

This report covers all of November and the first half of December. In that time eastern clay products producers have passed through periods of uncertainty, then of doubt, pessimism, hope, optimism and finally confidence, all depending upon the approach, passing and results of election and the prospects for business next year.

"We cannot do anything until the Supreme Court and the Interstate Commerce Commissioners make their decisions on vital cases now before them," said J. H. Whitbeck, of the Carey Brick Co. "The trouble is not so much with business conditions as it is in lack of common sense on the part of manufacturers up the Hudson. If they would hold the brick they have on hand until the market calls for it or a demand is created for it, then we would have better prices than $4.75 to $5."

John P. Kane, on the other hand, said he thought conditions were shaping themselves for a good year. "There is nothing fundamentally wrong with conditions as a whole," he said. "If there were, business would go all to smash. The howl comes from Wall street and the cry of 'Wolf' has merely made builders timid."

Yet these men were as gloomy as others just before election. It shows that conditions are slowly changing and that the demand for brick next spring, with the opening up of new facilities, the construction of the great subway, the expansion of manufactures and the revival of five story tenement house construction in New York will all absorb the great amount of brick now on hand as well as the new output. It promises to be a banner year.

Nobody expects any big development this month. They are looking for an improvement in business conditions shortly after the first of the year, however. By that time new labor agreements will have been made between the employers and the asbestos workers, blue stone cutters, cement workers, house shorers, marble cutters and setters, roofers, plumbers and steam fitters. Because these negotiations are pending and probably will continue to hang fire all the remainder of December, few new operations are going ahead and in consequence the demand for common brick, like all other clay products, has fallen off.

### Brick Makers Stampeding the Market.

Since the first of the month there has been a stampede of brickmakers with their products to market. They all wanted to get in before the river froze. On Thursday the Cornell Towing Co. brought in the last barge-load from the Upper district, which is above Roundout, but between that date and the first of the month 69 cargoes arrived from that vicinity as compared with 49 from Newburg and 23 from Haverstraw. It is this stampede which has resulted in such a weakening of prices. The movement emphasizes, in the words of a large brick manufacturer and distributor, the need of some organization which will be effective in keeping the brick business within the realm of a reasonably profitable enterprise, which is becoming daily more apparent.

A reference to the arrivals and sales of cargoes for two weeks of November and December, shows the extent to which the stampede grew:

Week Ending Nov. 5.

Left over, Oct. 29, 7.

| | Arrivals. | Sales. |
|---|---|---|
| Monday | 16 | 10 |
| Tuesday | 1 | 6 |
| Wednesday | 14 | 10 |
| Thursday | 14 | 13 |
| Friday | 0 | 4 |
| Saturday | 3 | 5 |
| | — | — |
| Total | 48 | 48 |

Left over, Nov. 5, 7.
Price, $5.25 to $5.50.
Condition of market, stiff.

Week Ending Dec. 17.

Left over, Dec. 12.

| | Arrivals. | Sales. | Covered. |
|---|---|---|---|
| Monday | 20 | 10 | 8 |
| Tuesday | 23 | 10 | 7 |
| Wednesday | 9 | 9 | 2 |
| Thursday | 5 | 3 | |
| Friday | 0 | 2 | |
| Saturday | 3 | 2 | |
| | — | — | — |
| Total | 60 | 36 | 17 |

Left over, Dec. 19, 27.
Price, $5.00. Range, from $4.75 to $5.25.
Condition of market, dull but firming.
Price for covered cargoes, none made.

The only company that is covering cargoes is the Empire Brick & Supply Co., which manufactures and distributes its own brick. Wright D. Goss, president of the company, said he thought conditions were going to pick up. "The only reason we are covering," he said, "is because it does not pay to market brick in the present market. Our plant, you know, is well up the river and we have to guard against closed navigation. I think we shall have better business conditions shortly after the first of the year."

### The Daily Shipment by Districts.

The race against Jack Frost resulted in dumping upon the New York market in the dullest two months of the year 147,000,000 common brick from the Hudson river district alone. Adding the contract shipments into this market of the Sayre & Fisher Co. the total probably would run up to 160,000,000 that the Metropolitan district had to absorb. Of this amount Haverstraw sent down 29,750,000; Newburgh sent down 52,850,000, and the Kingston district totalled 55,300,000. Much of this was stacked. The record by days for November and the first half of December follows:

| | Haverstraw. | Newburgh. | Kingston. |
|---|---|---|---|
| Nov. 1 | 0 | 1 | 0 |
| Nov. 2 | 5 | 6 | 3 |
| Nov. 3 | 0 | 4 | 10 |
| Nov. 4 | 0 | 0 | 0 |
| Nov. 5 | 1 | 0 | 2 |
| Nov. 7 | 2 | 7 | 2 |
| Nov. 8 | 2 | 2 | 0 |
| Nov. 9 | 2 | 7 | 4 |
| Nov. 10 | 0 | 5 | 4 |
| Nov. 11 | 4 | 4 | 6 |
| Nov. 12 | 3 | 3 | 4 |
| Nov. 14 | 1 | 3 | 16 |
| Nov. 15 | 7 | 0 | 0 |
| Nov. 16 | 5 | 3 | 4 |
| Nov. 17 | 1 | 2 | 8 |
| Nov. 18 | 1 | 1 | 9 |
| Nov. 19 | 6 | 9 | 5 |
| Nov. 21 | 3 | 7 | 13 |
| Nov. 22 | 1 | 3 | 2 |
| Nov. 23 | 6 | 3 | 3 |
| Nov. 25 | 5 | 7 | 3 |
| Nov. 26 | 0 | 5 | 9 |
| Nov. 28 | 0 | 0 | 0 |
| Nov. 29 | 2 | 5 | 7 |
| Nov. 30 | 3 | 1 | 2 |
| | — | — | — |
| Totals for November | 62 | 102 | 89 |
| Dec. 1 | 1 | 5 | 5 |
| Dec. 2 | 3 | 4 | 2 |
| Dec. 3 | 0 | 1 | 4 |
| Dec. 5 | 0 | 1 | 4 |
| Dec. 6 | 2 | 0 | 0 |
| Dec. 7 | 0 | 7 | 3 |
| Dec. 8 | 4 | 1 | 14 |
| Dec. 9 | 0 | 4 | 4 |
| Dec. 10 | 1 | 2 | 5 |
| Dec. 12 | 2 | 7 | 10 |
| Dec. 13 | 4 | 6 | 13 |
| Dec. 14 | 4 | 3 | 2 |
| Dec. 15 | 1 | 4 | 0 |
| Dec. 16 | 1 | 0 | 0 |
| Dec. 17 | 0 | 0 | 0 |
| | — | — | — |
| Totals for December | 23 | 49 | 69 |
| Grand totals | 85 | 151 | 158 |

### Possible New Fields for Common Brick.

New fields promise to open up to the common brick trade in the spring at the latest. A canvass was recently made of the Queensborough field by certain interests in this city. They reported an unusual activity for building material and masons supplies, but they were finding collections slow. They discovered the true cause of the mysterious circumstance is the fact that dealers are preparing for a heavy rush for ordinary building material late this winter, by loading heavily at present when prices are way down. They are giving notes in many instances to cover this indebtedness but they foresee a possible demand and a possible shortage in supply when the spring building movement takes shape.

Bronx brick dealers are doing the same thing. Brooklyn and New Jersey dealers' yards are well stacked in anticipation of a heavy call for materials which usually go either into speculative construction work or into factory buildings.

Following this investigation the Long Island Railroad Co. made public a statement showing that in the month of November the increase in the number of commuters over the total for November, 1909, was 1,457. This resulted from the opening of new transportation facilities. The promised opening of another set of tunnels connecting Long Island City and New York and the vast intermediate territory in Queensborough is bound to mean a greater consumption of brick.

"They say they have 275,000 brick up the river," said a member of the Building Material Exchange while watching the board this week, "but if the demand for brick meets our expectations over there, we will be able to take it and be hungry for more later on. Yes, sir, we're looking for a big brick and terra cotta year over in Queens in 1911."

### Few Brick Makers Making Extensions.

Few brick manufacturers along the Hudson river or in the Hackensack valley will make additions or improvements in their plants this year, according to advices received here. The DeNoyelles plant will have its new cofferdam and dredge system in operation at Haverstraw and the Empire Brick & Supply Company will extend its electrical equipment.

The Mehrhoff Brick Co., of Hackensask, will make only the usual repairs to its equipment this winter. The W. K. Hammond Brick Co. will overhaul its plant preparatory to operating its Dutchess Junction establishment to full capacity, if necessary, next spring. The Terry Brothers plant will be equipped with new transmission systems and the buildings and machinery will be overhauled. The Hand Brick Co., of Plainfield, N. J., which was recently damaged by fire, will not rebuild its sheds until spring. The Sayre & Fisher Co. at Sayreville, reports that it plans to "stand pat," which really expresses the sentiment of practically every brick maker in the east.

### Reasons Why Eastern Birckmakers Are Hopeful.

A careful canvass of the entire eastern trade was made by your correspondent this month. Thirteen districts were represented by interviews. Of this number four were utterly discouraged and saw no future for common or front brick, seven were sure of a healthy business year in 1911, one looked for a boom (this being a New Jersey manufacturer who expects a tremendous factory and residential development in the spring, following the opening of the Pennsylvania tunnels), and the other refused to talk. The territories covered included the Haverstraw, Newburgh and Kingston districts in the Hudson river; the Croton point, Stamford and lower Connecticut districts, as far north as Bridgeport; the Raritan river, Hackensack river and Matteawan, N. J., districts; the South river, N. J., Trenton and Plainfield, N. J., terra cotta and brick producing territories and the front brick branch of the trade whose works are in Pennsylvania and the west, whose expression is only that for distribution. The interviews follow:

Kingston.—Carey Brick Co. "Business is rotten in New York, but we are doing well in Boston where $6 brick rules. We are not optimistic about 1911."

Newburgh.—Terry Bros. Frank L. Holmes, speaking for Terry Bros., said: "In contrasting present conditions with those of a year ago this time, the conditions are well illustrated in the following fact: One seller turned down an offer of $6.55 to $6.75 a thousand for quantities aggregating 10, 15 and 25 million, while at the present time there is no inquiry from buyers for brick in any specific quantities at a specified price nor is there any inclination on the part of the manufacturer to contract for or sell any quantity of brick at the present prices nor under present conditions. I am looking for a good year in 1911 but I think it will come slowly. In the meantime manufacturers are not spending any money in extending their plant capacities."

Haverstraw.—The DeNoyelles Brick Co. Frank DeNoyelles: "These conditions are merely temporary. We expect a big building movement in the spring. The present low prices are discouraging but I know that most of the manufacturers from my district are optimistic."

Croton Point.—Croton Point Brick Co.: "The Westchester county brick makers feel that next year's demand for brick will take their entire output. The construction of the New York, Westchester & Boston Railroad will open up new factory and residential districts. We are preparing for a big year."

Stamford.—The Underhill Brick Co.—It was stated that it was too early to gauge the next year's business.

Lower Connecticut.—The Fairfield Clay Co.: "The outlook for home consumption at present is not good. We had our boom last year. We rather expect a reaction this year but not a serious one."

Raritan River.—The Sayre & Fisher Co.: "We are not making quotations in New York City now. Conditions look very bright to us both in our front and common brick departments. We are running our palet yards but are unable to ship because navigation is closed. We would not be surprised to discover next year to be one of our best, from inquiries now in hand for late January and February deliveries, subway construction work, government contracts and ordinary building construction."

Mattawan.—Henry Maurer & Co.: "We are not enthusing over next year's prospects any more than we enthused over this year's business."

South River.—The Fisher Brick Co., American Enamel Brick & Tile Co., etc., reported evidences of a very encouraging year in 1911 and that prices would be better maintained than they were in 1910.

Trenton.—The New York & New Jersey Brick Co. plant, Kingsland, N. J.: "There is no reason to doubt what next year will bring to the brick and clay products interests. There is a great deal of work on the boards, new territories are going to be developed and this will call for an increased amount of brick. We expect to be in a position to handle a bigger business than last year."

Plainfield.—The Hand Brick and the Rajotti Brick Companies: "The introduction into Plainfield and surrounding country, covering a radius of twenty-four miles, of the Philadelphia rows, a form of adjoining two family apartment houses, will consume large quantities of brick. All the manufacturers in that territory are planning extensive enlargements to take care of this new business.

Front brick and terra cotta interests reported encouraging conditions with the continued high price of stone and the tendency of architects toward the lighter shades of front brick. The architectural terra cotta companies are very much encouraged and the advertising campaign adopted by the National Fireproofing Co. and particularly by the Atlantic Terra Cotta Co. in New York and vicinity, has resulted in the displacement by glazed terra cotta of stone for facade work in many of the largest buildings, including the Liberty tower, the Knickerbocker Trust Co., the Heidelberg tower, Alwyn Court, and the polychrome decoration for the new Vanderbilt hotel.

It can therefore be seen that the majority of the clay products trade in the east is optimistic and that this hopefulness is based upon tangible evidences of improved business conditions.

## FROM THE TWIN CITIES.

St. Paul, Dec. 30.—The season of 1910 ended rather abruptly before it was through, to use a Hibernicism. For the active building season was cut into seriously in the summer, when it became apparent that the crop was short, and the fall season has been decidedly short, as compared with the usual fall volume, when times are more active. The records of the permits do not wholly bear this statement out, but it is because the permits cover some structures which had been planned and started long before, and had to be finished. But the volume of new work since summer has been limited and generally of the smaller type. There have been a few larger jobs taken up, planned or started, but the general business has been quieter than for several years.

In many ways this has been a very good thing for all concerned. It has proved a natural let up, which allowed manufacturers, sellers, contractors and owners to see just how things stand, and to get a fair perspective of real conditions and needs, rather than to follow a feverish example, such as sometimes occurs, and end in a condition of being sadly overbuilt, taking several years in which to recover and return to a normal condition. The cities of the northwest have little fear of being over-built, and after the conservatism which has drawn off some of the activity, has become wholly adjusted, it will allow a moderate resumption of activities, which will develop as much as the encouragement of the times will allow, and that should give a fairly good total.

A little resting period in building will do no harm. The concrete craze needs it, needs it greatly. For several seasons the fad has had a severe hold upon the owners and builders of the larger structures of the Twin Cities and of the northwest. Fortunately for all, there has been no serious disaster in concrete work. There was a collapse at one of the flour mills of a structure which was under way, which resulted in fatal injury to a workman, but the accident called forth very little public comment or interest. But a period in which little or no building of size is planned allows for a closer and more critical inspection of the structures of recent construction, and a due consideration of their attractive and repellent points. Concrete construction needs just such a course of X-ray inspection on the part of possible builders. Given full and ample consideration along these lines, it is a fair presumption that there will be a greater amount of new work done in the positively reliable fireproofing work in hollow tile walls and protection around steel beams and columns.

Brick and tile interests can well face a period of comparative quiet, for then is when more careful weighing of the real merits and demerits of various materials is given. If manufacturers and jobbers will do their part toward keeping the public informed and advised of the real value of brick, there is no doubt that the quiet period will be of immense future advantage to the clay industries. For it must be understood that while a somewhat slower period is before the northwest, it is not to be gathered that there is more than a period of temporary quiet. The people of the northwest do not feel that they have experienced any serious backset.

Through the farming territory, there are many farmers who have harvested as good or better crops than common. Some sections have suffered, and seriously, but there are many others which have been better off than common. And yet the latter class are holding back their grain, refusing to market it because of the low prices. They are prosperous but disgusted at the trend of the wheat market, and this attitude accounts for much slowness in collections. When they get ready to sell their grain, and pay their bills, they will start an improved condition which will help materially in every direction. With a territory in such condition as this, a campaign of education upon the real value and the comparative low cost of brick and tile construction cannot help but have a good response.

The amount of common brick on hand on the yards of the northwest, is not large enough to do more than serve for an average demand through the winter and early spring up to the time when new kilns will be available. Stocks are slightly heavier than they were a year ago at this time, but they are small enough to justify maintaining a fair and steady price upon them. There is no reason for cutting prices, and those who do so will simply be exhausting their stock at a low price, leaving their competitors to get better business a little later on, whereas all might have had better figures if they had maintained their values.

There is no reason why early spring trade should not be fairly active after a quiet period which lasted through more than half a year—sufficient to allow owners to reach a better appreciation of what they need in the way of improvements.

All in all, the brick trade seems to be on the edge of a turn for better things for its product. There have been some very lean years during the height of the concrete craze, and it is only within a year or so that there has been any indication of better things. But brick manufacturers have begun to see that they must protect themselves by pushing their product upon its merits, rather than allow other and less valuable materials to beat them out. As they pursue this course, they will benefit materially, and all indications point to their developing more business and getting a better share of the building there is to be done than has been the case in previous years.

The past year has been a fairly satisfactory one to the brick trade. The common brick yards have been able to maintain a better price for their product than in previous years, and they have become well established in the knowledge that it does not pay to cut prices and make a wild rush to get every job in sight. The development of this knowledge has resulted in less competition and a better spirit between competitors. They are still actively after every bit of business in view, but when one manufacturer lands a job, there is less inclination to try to undermine him.

The larger concerns in the Twin Cities which handle different grades of building and face brick, have had a very satisfactory season. The Hydraulic-Press Brick Co. has during the past season moved its head offices in Minneapolis from the old stand on North Third street, where they have been located for many years, to a ground floor location in the Security Bank building—a handsome structure of white enameled brick. The new offices of the company have been fitted up in most attractive shape, with counters, walls and specimens of their different wares, the whole making a very attractive office, and one decidedly out of the ordinary. The business done by this company during the past year has been good. Orders for the larger jobs in the Twin Cities have been placed with this house, and their volume in the smaller wares has been exceptionally good. The forthcoming season is promising to them.

The Twin City Brick Co., of St. Paul, with offices in both cities, has done a nice business. The new interlocking tile which was demonstrated so effectively in the new Hotel St. Paul, a million-dollar structure, has commanded a great deal of attention, and seems to be what was needed for the brick and tile trade—something a little different, in order to give the trade an opportunity to observe that there are changes, improvements and advances in brick and tile as well as in other materials. The company is an alert and aggressive one, and will demonstrate its effectiveness in the commercial world in a strong manner during the coming season. The Twin City Brick Co. has kept step with progress during the past season, and has moved and enlarged its Minneapolis offices, as well as made changes in the St. Paul down-town office. The Minneapolis offices now occupy a suite of rooms on the tenth floor of the Lumber Exchange building, having moved from the second floor, and walls have been laid up in their various wares, showing the beautiful effects which are possible with brick. The effect of such displays as these have tempted many brick men to wonder if it would not be a good plan and productive of business to have a public display located somewhere that the general public might visit and study without feeling in danger of being solicited to buy—not that the different companies would necessarily do this, but because of the feeling of the public. F. Koch, the president of the company, and his organization are entitled to a great deal of credit for the progress which this company has made. The displays maintained by this company in the St. Paul and Minneapolis offices are worthy of close and careful inspection. Architects and builders have found them suggestive of much information for the benefit of their customers and clients.

The Northwestern Clay Association is looking forward to holding its annual meeting in April, having about given up the dates originally set, Feb. 1 and 2, because of conflicts with other associations. A program of exceptional strength and worth is being formed, and it is expected to make it so attractive that there will be a larger attendance than ever before. Ira C. Jones, of Minneapolis, has charge of the program, and expects to have a very attractive program to offer. It is probable that the meeting will be held early in April, just before the opening of the spring season, and it is hoped that the program will afford everyone attending a chance to add to his stock of information to use in the new season. The meeting will be held in the quarters of the Builders' Exchange, in Minneapolis.

## FROM THE BUCKEYE STATE.

Columbus, O., Dec. 21.—Managers of brick manufacturing plants in the Buckeye state are united in saying the year just coming to a close has been one of the most prosperous in their history. Plants have been operated on practically full time without any labor troubles to interrupt and sales have been good. On the whole the trade has been satisfactory in every respect.

One of the best features of the trade has been the active building operations in every part of the state of Ohio and also in surrounding states, reached by the product of the Buckeye state. Reports of the city building inspectors of Columbus, Dayton, Toledo, Cleveland, Zanesville, Cincinnati, Wheeling, Pittsburg and other cities in that territory show heavy increases in number and valuation over the preceding years. In Columbus alone the records of the city building inspector show that the gain of 1910 over the preceding year was 31 per cent, which was reached by a steady growth.

Sales of Ohio-made brick to out of state points have been unusually large during the year, as is attested by the reports of the sales departments of the factories. Shipments to the Eastern markets have been one of the features and the demand for the better grade of faced brick is becoming better.

Columbus is the headquarters for fully 25 large brick producing plants located in all parts of the Hocking Valley, making it one of the largest brick centers of the country. In addition to the brick plants there are a number of fireproofing plants located in the same sections and also other clay products companies of consequence. On the whole, the state of Ohio is by far the largest producer of face bricks of any state in the country.

Columbus factories ship their product to all parts of the United States from the eastern coast to the Rocky mountains, and also into a greater part of eastern Canada.

J. M. Adams, secretary of the Iron Clay Brick Co., which has a large plant at Shawnee, Ohio, said: "Business during the past year has been the largest in the history of the company and the brick business generally has been very prosperous in all parts of the Hocking Valley. The Hocking Valley, with Columbus as the center, is the greatest brick producing section in the United States, manufacturing all kinds of face brick, paving block and brick, not to say fireproofing and other clay products. The outlook for the coming year is good, although it is too early in the season to make prophecies. Prices during the past year have been slightly higher than formerly, although they are still held down because of the great competition due to the increased number of factories in the Hocking Valley."

L. G. Kilbourne, president of the Columbus Brick & Terra Cotta Co., speaks in the same vein of the prospects for the coming year. He says that business has been fair all through the year and has been better than for the past three years. He is of the opinion that the prospects for the coming year are better than was the case at this time last year. He can not see where there will be a bad year with the bumper crops and the general prosperity which pervades the whole country.

Other managers of brick plants are optimistic of the future and preparations are being made for a big year. Sales are expected to be larger than was the case in 1910 and advance orders are already coming in briskly.

The Wooster Shale Brick Co., of Wooster, O., was incorporated with an authorized capital of $15,000, to manufacture and sell paving bricks and all other clay products, including the buying and leasing of lands and the erection of a plant. Another power given in the charter is the manufacture of sewer pipe.

The Enamel Vitrified Brick Co., of Toledo, was incorporated with an authorized capital of $100,000, to make and sell vitrified face brick, brick blocks, terra cotta and all kinds of building brick. The incorporators are J. J. Urschell, George C. Penney, F. M. Dotson, E. S. Smith and C. E. Holden.

The Clover Leaf Coal & Fire Clay Co., of Bergholz, Jefferson county, O., was incorporated with a capital of $50,000, to mine coal and fire clay, by Henry D. Eynon, E. Price, George Fisher, Daniel Eynon, Jr., John Fisher and Maurice Eynon.

The Burdell Silica Co., of Columbus, O., was incorporated with an authorized capital of $25,000, for the purpose of mining and quarrying stone, clay and other materials, by Foster G. Burdell, Herbert M. Myers, John F. Bechtel, Ralph N. Harris and John A. Alburn.

The National Staple Post Co., of Westerville, Franklin county, O., was incorporated with a capital of $100,000, to manufacture and sell composition posts under a patent and to make concrete products. The incorporators are R. B. Bennett, Charles S. Pilkington, Jesse P. Montz, W. B. Johnston and A. G. Crouse.

The Toronto Fire Clay Co., of Toronto, Jefferson county, O., was incorporated with an authorized capital of $250,000, to manufacture and sell clay products. The incorporators are J. B. Nicholson, Harry Nicholson, L. L. Grimes, C. P. McFadden and John E. Nicholson.

Notices have been issued for the annual stockholders' meeting of the McArthur Brick Co., at McArthur, O., January 9. O. F. Pilcher is secretary of the company.

The contract was awarded Dec. 20 by the receivers for the Columbus & Hocking Coal & Iron Co., for an entire new power plant for the brick plant of the company located at Kachelmacher, O. The contract includes the installation of new boilers, motors, generators and all electrical equipment. The plant has been closed down since February of 1910, but it is the intention to get it in condition for operation by March 1, 1911. The machinery which was installed in the plant several years ago will be repaired and used.

The Impervious Brick Co., of New Straitsville, O., has started to build two additional kilns to take care of the increasing business of the plant. The capacity of the plant will be increased about 12 per cent when the kilns are completed. The concern is owned by the Moulding Bros., of Chicago.

The Moxahala Brick Co., of Columbus, O., has been incorporated with an authorized capital of $200,000, to manufacture and sell all kinds of clay products, by F. H. Muchler, F. Hinkle, H. W. Davis and others.

The Sanitary Glass Facing & Brick Co., of Columbus, which has offices in the Columbus Savings & Trust Bldg., has received a trial order of size from New York City. The order comes from the company constructing the underground system in the metropolis.

The Columbus Brick & Terra Cotta Co. has placed on the market a new make of brick styled the Astrakhan. The company made an attempt to have the name copyrighted but was informed that geographical names could not be copyrighted. The brick is a rough finish in buff and gray and has been attracting considerable attention. The company expects to make a number of small improvements at its plant at Nelsonville.

Charles Frank, of the Nelsonville Brick Co., manufacturers of paving brick, reports an unusually active season during the past year. He says that brick as a paving material is becoming more popular every year and he looks for a good trade during 1911.

A number of Columbus men attended the hearing before an examiner of the Interstate Commerce Commission at Cleveland, Dec. 12, on the question of increased express rates on sample bricks. Since 1905 express rates on sample bricks have more than doubled and they got to a point where they became exorbitant and as a result the Ohio Face Brick Manufacturers' Association brought an action against the express companies to have the rates reduced. It was argued before the commission that brick which were used for samples and which had no value and for which the express companies would pay nothing if lost or destroyed, commanded about the same rates as millinery, beer and other manufactured articles of great value. J. M. Adams, secretary of the Ironclay Brick Co., of Columbus, president of the Ohio Face Brick Manufacturers' Association, and L. G. Kilbourne, president of the Columbus Brick & Terra Cotta Co., treasurer of the same organization, were present and presented the arguments for the manufacturers. J. D. Martin, superintendent of the Impervious Brick Co., of New Straitsville, and E. C. Clark, of the Kittanning Brick Co., were also present at the hearing.

Columbus, O., Dec. 23.—Throughout Ohio manufacturers of clay products have shown their pleasure over the condition of business during the last year and are looking forward to 1911 in rather an optimistic manner. Especially in the Hocking Valley has trade been good. All of the manufacturers in that part of Ohio have been operating their plants almost steadily and have been able to ship about all they could make.

In the eastern Ohio and Ohio Valley sections, both brick and sewer pipe manufacturers have not been heard to complain of business.

Stocks on the yards, as a rule, are not very extensive, and this in itself indicates that shipments have been very satisfactory.

Face brick manufacturers have been experiencing a busy period, and during the summer months these plants were generally worked to their capacity.

Paving brick plants have also experienced a fairly good season. That the successes of 1910 will be duplicated in 1911 there is no question.

Throughout the year many new brick manufacturing concerns were formed in Ohio, and it is estimated that over one hundred clay manufacturing corporations were chartered under Ohio laws. The capital stock of these concerns amounts to nearly $1,000,000, which, added to the capital of those concerns formerly in business in the state, is proof of the fact that Ohio is the top notch clay manufacturing state in the Union.

W. R. Barnhart, Jr., of Wooster, has formed the Wooster Shale Brick Co., with a capital stock of $30,000. A plant is to be built equipped with all modern appliances for the manufacturing of brick.

One of the largest sewer pipe contracts let in Ohio during 1910 is that now under construction at Bellefontaine, where work has been started on the building of fourteen miles of sewer. The contract was secured by W. A. McDowell, of Cleveland, and Elmer McConnell, of Kenton. Engineer H. E. Riggs, of Toledo, is in charge.

Because of the mutual interest of the stockholders of the two companies, the Buckeye Sewer pipe Co. has taken over the plant and interests of the Summit Sewer Pipe Co., and the two plants will be operated as one. For this purpose the Buckeye Sewer Pipe Co. has increased its capitalization from $150,000 to $300,000.

The Cincinnati Clay Products & Supply Co., of Cincinnati, has increased its capital from $15,000 to $30,000.

The Woodburn Tile & Brick Co., of Woodburn, has filed a notice of the increase of capital stock from $12,000 to $18,600; Henry Schepelman, president.

The Toronto Fire Clay Co., of Toronto, to make clay products, has been incorporated with $250,000 capital by J. B. Nicholson, Harry Nicholson, L. L. Grimes, C. P. McFadden and John E. Nicholson. The plant is near Empire and was built about a year ago.

The Advance Fire Clay Co., of Uhrichville, has landed a big order from a St. Louis concern and has contracted for the shipment of 400,000 brick to that city.

The Lawrence Clay Products Co., of Canton, will start to manufacture an enameled brick under its own process and in its own property early in the new year, according to a statement recently made by an official of the company. The head offices of the concern are in the Citizen's National Bank, Canton. Art pottery is a possible future production of this concern, according to reliable report.

The East Liverpool Sagger Co. will commence to use coal for kiln firing, for the increase in rates demanded by the gas corporations for fuel gas are of a prohibitive nature. The company will likely erect an additional kiln at an early date.

The Peacock Mining Co., of Mineral City, O., has sold its holdings to Frank B. Hardgrave and James L. Freeble, of Latrobe, Pa. The consideration is said to have been $300,000, the new owners giving in exchange as part payment two large apartment houses in Pittsburg. The coal mines of the property will continue in operation and later a brick plant will be erected, much of the land being underlaid with fire clay.

Wooster Shale Brick Co., of Wooster, has been formed with a capital stock of $150,000 by Paul S. Barnhart and others.

Rumor has it that the two plants owned by the American Sewer Pipe Co., at Calumet and Empire, will be put in operation. Both have been idle for a year or more. The Calumet works is one of the largest along the river.

The Monroe Tile Co., of Monroe, Adams county, has been formed with a capital stock of $10,000. Directors are Jerry Liechty, M. S. Liechty, Rufus Sprunger, Emanuel Sprunger, Daniel Stucky and Otto Stucky.

Operations have been commenced at the new plant of the Hinde Brick & Tile Co., at Sandusky, and steady work through the winter for 125 men is assured.

At Conneaut the United Brick Co. has closed its plant for extensive alterations and additions.

The Somerset Brick plant has been sold to H. H. Belden & Son, of Canton, after being idle for two or three years. It will be placed in operation as soon as needed repairs are completed.

After being idle more than a year, the Royal plant of the Robinson Clay Products Co. has resumed operation.

At Toledo, O., the Enamel Vitrified Brick Co. has been incorporated by J. J. Urschell. F. M. Dotson and others are to erect a plant there for the manufacture of enamel and face brick.

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## NEW YEAR'S TIDINGS FROM TOLEDO, O.

With Old Father Time ringing down the final curtain on 1910, interest in the new year is paramount and speculation is now rife as to what it will contain for those interested in the building world, and especially those who have and are laboring to make the brick industry what it is. In a word, it may be said that the year ending has been only fairly satisfactory. The volume of business did not reach the figure anticipated at the start and what did materialize was, for the most part, not of such character as to be representative of the possibilities of the business. On the other hand, 1911 gives promise of not only exceeding 1910 by a good, comfortable margin, but of actually being one of the best years for building activity that northwestern Ohio has ever experienced. Nor is this based on speculation, for unless projects, already so well under way as to make it improbable, should suddenly be tabled, there are already enough new undertakings occupying the attention of architects to exceed the total volume of 1910. In fact, the new structures of size are of such volume as to more than exceed the total amount for this year. A more detailed list of these will be given below.

It is with a sense of keen satisfaction that one can truthfully say that Toledo and northwestern Ohio is undergoing a marked change in the character of its building operations and for which the manufacturers of the finer grades of brick, and the National Brick Manufacturers' Association may take much credit to themselves. Only a decade ago the use of a finer grade of brick in anything but the highest grade of building was something unusual. Now it is rare to build an ordinary structure and use common brick for facing. Even the modest cottages are being built of pressed or vitrified brick, and what this means for the civic beauty of the city can be imagined without comment.

Toledo, as generally known, is a "frame" town. By that we mean that the majority of the homes are of wood, and hence this has never been the market it should be for the finer grades of brick, and it is a matter of record that many a city of equal size uses more pressed or vitrified brick, where the freight rates are higher than the actual cost of the brick are f. o. b. Toledo. Why this should be in a city located within a stone's throw of the Hocking Valley or in the heart of the largest fine-brick producing community in the world. Manufacturer after manufacturer has sought out Toledo as a choice and easily accessible market, only to find after months of earnest work that Toledoans have to be taught and not driven into the use of this grade of building material. Now the results of this schooling are becoming manifest, although one not thoroughly informed as to conditions might have difficulty in noticing the change.

Toledo has tried to make wire-cut brick out of its local clay with only mediocre success. Some few have been made, and at least one architect passed favorably upon them, but to date the old-style sand-mould brick form the bulk of the product, and these, of course, do not show up well with the finer and harder burned shale brick which have had, and deservedly have, the precedent over the local product for facing buildings of any importance. For backing up, foundation work, coarse factory and rear-wall work these, of course, will probably always, or at least for years to come, have the call for this grade of work.

Prices on local brick during the past year have been stationary and the supply has been normal. The winter supply is not noteworthy either way, although indications point to a heavier demand between now and March 30 than a year ago. A number of the local plants will be overhauled during the slow months and one or two contemplate the installation of new machinery to some extent.

Interest in the manufacture of enameled brick has been aroused locally by the announcement by J. J. Urschel of the formation of a new company, which will manufacture enameled brick under a new invention and patent. Experiments have been tried out at considerable length at Bucyrus, and those backing the company believe that success has been attained so far as to insure a revolution in the manner and method of manufacturing this grade of facing material. Associated with Mr. Urschel, who is widely known through his connection with the Urschel-Bates Valve Bag Co., Woodville White Lime Co. and Acme Builders' Supply Co., is C. E. Holden, a brick manufacturer of Mineral City, O., who has spent a great deal of time and money in the manufacture of enameled brick, and F. M. Dotson, a local attorney. Definite location of the proposed plant of the company has not yet been determined upon, nor is the company ready, as yet, to give detailed announcement of their method or patent.

Of the structures already under way for 1911, two are new high school buildings, for which the board of education has just awarded the general contracts to the H. J. Spieker Co. The general contract price of each is $289,985, and work has been started. For facing these buildings the board has selected a dark vitrified brick with tile roofing. Incidentally it might be said that bids are first asked for early in the year, but as the figures overran the estimates it was decided to table both propositions for several months, and upon taking new bids the board discovered that it will save about $175,000 on the general contract by so doing.

The contract has just been awarded to Dan Kintner, Defiance, O., for the erection of a Masonic Temple in that city. This structure, plans for which were made by Architect M. M. Stophlet, Toledo, will be faced with a dark-colored glazed brick. The estimated cost of the building completed is approximately $100,000.

Other large structures, plans for which have either been made or are being made, and which will be largely of concrete and brick construction, include a million-dollar addition to the Ford Plate Glass Co., Rossford, O., a small village adjoining Toledo. This addition will consist of 14 separate buildings and with the machinery and nearly 100 homes for employes, which the company will erect, the total cost will be close to a million and a half. The largest single building will be 190x1,055 ft.

The National Supply Co., which manufactures and jobs all kinds of building and machinery supplies, will shortly start the erection of enough new building to cover eight acres or slightly more than double its present capacity. These additions will be of local brick and concrete.

Two new coffee-roasting plants are to be erected this season, one by the Woolson Spice Co., known for many years as the roasters of Lion coffee, but more lately of higher grades, and the other by the Gasser Coffee Co. The contract for the former has been awarded to the A. Bentley & Sons. Co., and announcement has been made by the owners that, when completed, it will be the largest coffee-roasting plant in the world. It will have a roasting capacity of 1,000,000 pounds a week.

Several other preliminary plans are under way and architects state that the winter months give promise of being busier than usual, with the spring opening earlier, as many prospective clients have signified a desire to start just as soon as weather conditions will permit of aggressive work.

There will be few changes among local brick manufacturers or agencies. William J. Spear will devote more of his attention to general contracting than before, but this will mean a larger output from his plant than before. Otto Ausbaugh, vice-president of the Ohio Builders' Supply Co., has disposed of his stock in that company and will retire from the local field. He was one of the best known supply men in this locality. A. B. Luten, who represented several brick manufacturers in this vicinity and who several months ago organized the Superior Supply Co., has moved his display rooms from the Ohio to the Nicholas building, where he continues, through the new company, to have one of the finest displays of facing brick in Ohio.

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## FOREST CITY ITEMS.

Cleveland, O., Dec. 24—With the year just drawing to a close the brick interests in this city express themselves as being entirely satisfied with the volume of business which has been done and with the outlook for the year 1911. The building permits for this year show that buildings of an estimated value of about $13,000,000 were erected. As permits seldom represent more than half the real value of the structures it is estimated that in round figures $20,000,000 was expended this year on building operations. This is the largest sum ever spent in one year, eclipsing by a close margin the year 1907.

Some notable buildings of brick and terra cotta have been erected this year, including four skyscrapers. The annex to the Rockefeller building, costing $1,000,000, sixteen stories in height and composed of chocolate colored brick is now finished and partly occupied. The new fourteen story building for the Brotherhood of Locomotive Engineers, of white glazed tile and gray brick, costing $250,000 and one of the finest buildings in Cleveland was completed by midsummer and is now almost entirely occupied. The twelve story office building for the City Investment Co., on Euclid Av., just east of E. 9th St. of tile and gray brick is under roof. Its cost approximates $800,000. Ten of the twelve stories of the new Cleveland Athletic club building are finished and terra cotta is being rushed as the weather will permit. All four sides are of white glazed terra cotta.

Another very attractive building is the new Elks temple on Huron Rd., costing about $250,000. It is of red brick with elaborate terra cotta trimmings. The ten story annex to the May Co.'s building on Ontario st. cost about $200,000, red brick and tile being used throughout. The Plain Dealer's new $500,000 office building is now under roof. The first story is of pink granite while the five stories above are of a very fine imitation of granite done in terra cotta. These are the more important of the downtown structures, though a number of fine mercantile blocks have been erected. Practically every one of these buildings were erected from clay materials, sold through agencies located in this city.

For the year 1911 the dealers, manufacturers and supply men feel very optimistic. Already building operations aggregating $10,000,000 are in sight and if the outlook augurs anything next year will swing another slam at the city's building record. Probably the largest individual project is the starting of the new hotel which is to be erected for E. M. Statler of Buffalo at a cost of approximately $2,500,000. It will be at least sixteen stories high and possibly twenty stories if the building code of the city will permit. It will be of the most modern type of construction steel and reinforced concrete being used for the superstructure while the walls will be of brick and ornamental terra cotta. The contract for designing the structure has just been let to George B. Post & Sons of New York city, with a branch office in Cleveland in charge of P. R. Seigel and Charles Schneider. The actual building operations will begin early in February when the excavation for the foundations will begin. The structure will contain over 800 rooms and will be among the eight largest hotels in America.

Another building of considerable proportions is to be erected for the Leader Publishing Co. at E. 6th st. and Superior av. B. E. It will be fourteen stories in height, 149 feet on Superior and 214 feet on E. 6th st. It will be of brick and terra cotta with steel superstructure. No architects have been announced as yet but the project has been fully financed by Cleveland banks and building operations are expected to begin just as soon as the weather conditions will permit. The building will cost upward of $1,000,000.

Another building costing about $1,000,000 is to be erected for the Brotherhood of Locomotive Firemen and Enginemen who will move their headquarters from Peoria, Ill. to Cleveland. A site costing $100,000 has been purchased at W. 6th st. and Superior av. and a ten story building of white terra cotta is to be built. It will be 60 by 150 feet in size and will have three street frontages. On the first floor provision will be made for a bank, with offices above.

Work has been started on the foundation for the new city hall, and early next spring the city will issue bonds for $1,000,000 to carry along the superstructure for that season. The building is to cost $2,600,000 and will take three years to complete. While the exterior is to be of granite to conform with the group plan of public buildings the interior will be constructed almost entirely of brick. The foundations are also entirely of brick except where area walls show. Over 10,000,000 brick will be required for the structure, it is estimated, in addition to a great deal of floor tile.

The Y. M. C. A. has had plans completed and is now taking bids for three new association buildings to be erected first thing next spring. One is an eight story central building costing $500,000. A branch on E. 105th st. near Euclid, also of brick will cost about $100,000 and another branch on the West Side on Franklin Av. will cost somewhat more than that sum. Last June over $500,000 was raised in a great campaign lasting over a week, so that the directors of the three projects are not worrying over the matter of funds.

The Commercial Building Co., T. M. Swetland, general manager, will erect a six story mercantile building on Euclid av. east of E. 9th st. beginning work early in the spring. It will cost about $400,000 and will have a white tile front.

The city of Cleveland has voted $250,000 in bonds for the erection of a new tuberculosis sanitarium at the Warrensville city farm of 2,000 acres. It will consist of a main service building, two hospitals, and four shacks, the latter having capacity for 20 patients each. Plans are being completed by

Architect J. Milton Dyer and contracts will be let early in the year. During the coming year the city will complete its new West Side market house which is costing $250,000, several fire engine houses and two large bathhouses. There are projected in addition a $1,000,000 interurban passenger depot, a $1,000,000 art museum, an $800,000 exposition and music hall and a number of apartment and mercantile buildings of note.

## FROM THE PACIFIC COAST.

San Francisco, Dec. 17.—Conditions in the Pacific Coast brick market for the last year have been peculiar. Hopes for a big year in San Francisco have been disappointed, the volume of building work here showing a steady decline, while building records in the other large cities of the Coast have increased enormously over those of previous years. Remarkable activity has also been observed in most of the smaller towns of California, though no official figures are obtainable to show the real extent of the increase. The year has been distinguished by unprecedented activity in sewer construction, which has extended to all parts of the Coast, consuming many millions of high-grade brick, as well as hundreds of miles of sewer pipe, from the largest to the smallest sizes. In this line, at least, San Francisco has maintained its precedence over other Coast cities. Some notable progress has been made in the line of paving brick, which has been in good demand in the North and South, and has at last been introduced for trial in Oakland, with fair indications that it may be given a practical test in San Francisco next year.

The increased demand for brick up and down the Coast has been met by increased production, and in places where raw materials are plentiful prices have been held at a comparatively low level, though values are high where the raw material is scarce and transportation costs high, as is the case at many places. The principal changes around San Francisco have been the installation of improved machinery with a view to economy, and a few reorganizations at the selling end.

The price of common brick in San Francisco has been the lowest for twelve continuous months in the history of the business, the average being about $6.25 per M. on the cars or docks. The kiln price at yards on the railroad, which have relied on San Francisco as a dumping ground for their surplus, has ranged from $4.50 to $5 per M. for the larger brick, which are 2½ x3⅞x8¼ in., some firms making brick as thick as 2¾ in. The brick men, however, look for a good year in 1911, in view of the large amount of both public and private work which is coming up for figuring in the near future. San Francisco has built many public schools, etc., during 1910, and the administration has been very favorable to brick. One building now under way will require about six million brick. This class of work will be continued through 1911, and the city is again beginning to need more business buildings and apartment houses of a permanent nature. Moreover, the local firms are greatly increasing their business in the interior of the state, and even to distant points. A month ago there was a little slump in local prices, but following the discovery of a new outlet for the accumulated surplus, values have stiffened, with every indication of further advances within the next few months.

If the outlet referred to can be kept open the local manufacturers will certainly be greatly benefited. The credit for opening up this new field belongs to W. W. Dennis, sales-manager of the McNear Brick Agency of this city, who returned about the first of the month from a trip through Oregon and Washington, and to Vancouver, B. C. Mr. Dennis has been investigating the possibility of shipping common brick to coastwise ports, and reports phenomenal success. "The McNear common brick," he says, "are the toughest and strongest on the Pacific Coast," and it has been the object of this company to build up an export business on this material outside of their own state to relieve the slump which occurs in this market so frequently.

Shipping a large part of the product to Coast towns and the Hawaiian Islands, as well as Mexico, will have a healthy effect upon the keen competition always existing in "the home market." As a result of this missionary work, the McNear Brick Co. has chartered the large steamer F. S. Loop, and dispatched it a few days ago with a cargo of common brick for Vancouver, B. C. Mr. Dennis believes this branch of the business can be enlarged, and has been working for a month to show the owners of the lumber-carrying steamers how they would gain by making the lowest possible rates on brick to points on the Coast where the vessels call for lumber cargoes for San Francisco.

This traffic is made possible by the fact that a large fleet of steamers is employed in the transportation of lumber from the North to San Francisco, with comparatively little traffic in the opposite direction. The cement and asphalt interests have for some time taken advantage of this to move their surplus north, and now, apparently, the brick men are taking their turn. It is reported that at many places in the North brick of mediocre quality are sold at high prices, but in order to maintain this traffic it will still be necessary to accept comparatively low prices at the kilns, and to handle the material as quickly and cheaply as possible. If the surplus can be moved off in this way, however, it will be possible to maintain prices in the home market at a level which will at least cover the cost of operation, and perhaps afford a little profit.

It is considered very unlikely, even though the market should be fully up to expectations, that common brick prices will ever again reach the high figures commonly quoted a few years ago, and the top price is not likely to be much over $7 per M. The reduction was first caused by excessive competition, but will be maintained by the ability of the manufacturers to produce more cheaply. The number of firms doing business regularly in San Francisco is now comparatively small, those which were unable to reduce their costs having been compelled to seek other markets or retire. Cheap oil fuel has been a great thing for the industry, but some large manufacturers are still burning coal and making money, the reduced cost being principally due to the greatly improved machinery, which eliminates an enormous amount of the waste and labor of handling which formerly had to be met.

W. H. Edwards, of the Carquinez Brick Co., says: "I think the outlook is very good for next year. We have all the work we can do, and I look for an advance in prices of 75c or $1 per M. early in the year. We are shipping a large amount of brick to San Francisco every day, and have taken on a great deal of new business here recently. We also have an extensive rail business, shipping to Sacramento and nearby towns. One building in Sacramento, on which contracts are being let, will require one or two million brick. We can make brick now at a much lower cost than a few years ago, as we have put in a lot of new machinery, and the coal formerly handled by hand is now moved automatically from the cars to the kilns."

The San Francisco Brick Co. has been occupied this year principally with municipal work, securing most of the largest school and hospital jobs, though its two plants are also furnishing material for a number of private buildings.

The Sacramento Brick Co. is shipping considerable brick to its yard on the Channel from the kilns at Sacramento, Cal., and continues to get a substantial share of the business here in the face of local competition.

The Semillard Brick Co., one of the oldest and largest of the common brick manufacturers, operates three large plants at outside points, and maintains a yard in the building material district on Channel Creek, but its largest business is in the interior and around San Jose, where one of its plants is located. This company has a large trade in the interior valley, which local manufacturers are unable to reach, and conditions in that territory are very favorable.

Sewer work is less active in San Francisco than for some time past, as there is not much money available at the moment to take care of new contracts. A little work is being let, however, and some large jobs are expected to come out in the spring. Work now on hand will not be completed before that time. Many outside sewer jobs are coming up, and conditions indicate an even busier year than that just closed.

The Steiger Terra Cotta & Pottery Works has just completed the sewer pipe for Tulare and Porterville, Cal., and is shipping a large quantity to Roseville. No addition is being made at present to the capacity of the plant, but the facilities for handling the output are being improved. A new yard has been added at the plant, on tidewater in South San Francisco, with a depressed track to facilitate loading on the cars, and improved wharf facilities. This is the only pottery and terra cotta factory in this vicinity located directly on deep water, and shipments can accordingly be made to a good many points not easily covered by others.

N. Clark & Sons have several good jobs in mat-glazed brick and polychrome terra cotta, including the Rivers building and the Eagles' lodge building locally, and the Realty Syndicate building in Oakland. A good deal more work could be done in this department, but the sewer pipe department is kept working at capacity.

The Carnegie Brick & Pottery Co., in which J. F. Roberts recently succeeded M. A. Murphy as manager, has turned over its entire sales department in San Francisco to the Western Building Material Co., which has been in business for several years at 430 California street. This company handles all lines of building material in quite a large way, and is in a good position to market the numerous Carnegie products.

J. H. McMullen, of Pomona, Cal., part owner of the Pomona Brick Co., died Nov. 27.

A temporary decrease in the demand for sewer brick in San Francisco is giving the Vallejo Brick & Tile Co. leisure to turn its attention again to the manufacture of paving brick.

E. D. Gates, for three years manager of the terra cotta department of the Denny-Renton Clay & Coal Co., of Seattle, Wash., has just left to take a position with a New York firm. On the eve of his departure his advance was celebrated by a banquet in his honor, given by a number of the leading brick men of Seattle.

The new plant of the Superior California Brick & Tile Co., near Willows, Cal., now has enough orders on hand to take up its output throughout the winter, and a new kiln is being installed. The plant is equipped with the most modern machinery throughout, with oil-burning kilns.

An ordinance has recently been passed at Los Angeles compelling the Southern California Brick Co. to remove its plant from the Boyle Heights residence district.

The new plant of the Livermore Fire Brick Co., Livermore, Cal., commenced shipping on a large scale late last month, on orders for material to be used in a large plant at Sacramento. The company has been sending out large shipments steadily since that time. A large repress has just been installed, and is expected to greatly improve the quality of the output.

The Temescal Clay Products Co. has been incorporated at Los Angeles, with a capital stock of $1,000,000, by V. Graves, S. N. Coulter, G. H. Turner, H. D. Lore and H. B. Duncan.

The California Pressed Brick Co. of Niles, Cal., is preparing to take up the manufacture of paving brick next spring. A large amount of development has been done on this plant, which is located between the Southern Pacific and Western Pacific railroads, with good shipping facilities by both roads. The plant is located on a 53-acre tract, rising at one point to 100 ft. above the plant, and containing a large deposit of plastic clays, soft yellow and blue shales, surface clay mixed with disintegrated sandstone, and soft sandstone. The clay pit, near the plant, is connected by tram and drum hoist with a dump above the dry pans, and corrugated iron sheds with a capacity of 2,800 yards of clay have been erected in the pit. The clay is brought to the dump floor in the sheds by horse scrapers. Power is furnished by two large boilers and one small one, fitted for oil burning, the oil being delivered direct from cars into a pump, and a large Bates-Corliss engine. There are two 9-ft. dry pans, a Raymond and an American. Material is taken from dry pans to screens by elevators and after mixing is taken by a belt conveyor to a 12-ft. Raymond pug mill, which discharges by gravity into a Raymond auger brick machine. After passing the Raymond delivery and cutting tables, the brick are carried on drying cars to concrete drying tunnels. There are 500 cars, and two sets of tunnels of 12 each, through which the cars pass by gravity. There are 6 round down-draft kilns, with a capacity of 85,000 brick each, one continuous 7-chambered gas-fired kiln, with a capacity of 65,000 brick to the chamber, and an oil-burning case kiln with a capacity of 750,000 brick.

## ST. LOUIS.

St. Louis, Mo., Dec. 27.—The usual conditions for this season of the year prevail in the brick making industry. The majority of the brick manufacturing plants are at work turning out their products, but they will shut down within the next few days in order to make the usual repairs or any improvements that may be deemed necessary.

Business has been better during the past few weeks than is generally the case at this season of the year, for the weather has not been so severe as to completely close down building operations.

A review of the business conditions of the past year shows that at the opening of the year business was fairly good and quite satisfactory in every way. This state of affairs continued for some time and then business fell off. This was undoubtedly because the erection of residences and flats stopped for a while because of so many apartment houses being erected and the demand for smaller buildings was not as great as formerly.

In the manufacturing line there has been quite a good business. The additions to and the erection of new manufacturing plants necessitated the purchase of a great many brick. During the summer months, conditions continued to be quiet. Even in the fall there was a marked decrease in business owing to unfavorable weather. At the present time most of the building being done is apartment houses and small one-story buildings in the suburbs.

Prices early in the year were about $8.00 for merchantable, $8.50 for ordinary hard and red and $8.75 for strictly hard and red. During the summer months prices fell off gradually owing to the lack of demand, and now prices are about $7.00 to $7.25 for merchantable, $7.75 for ordinary hard and red and $8.00 for strictly hard and red.

The views for the future are very conflicting at the present time. Some manufacturers are of the opinion that there will be a good business in the spring and that there will be quite a good demand for all kinds of brick. Others differ and say that from what they learn business will be anything but satisfactory when building operations begin.

Architects are not very busy at the present time. This is a pretty good indication that building operations will not be brisk in the near future.

The majority of the brick manufacturing plants have not been working full time recently. When they get a supply of brick on hand they shut down until the supply becomes exhausted. Then they start up work again and make another run.

In eleven months of 1910 St. Louis spent $18,763,184—from January 1 to November 31—indicating between $19,000,000 and $20,000,000 for the full year. This is somewhat less than the average of the last few years, because since 1905 the city has its down town quarter so well stocked with skyscrapers that plans for building others, some of them still larger, have generally been held over for next year.

When this is given as the explanation of the "about" $20,000,000 as the building record of St. Louis for the past year, the figures may be taken for multiplication by five to illustrate what modern city building now means. As this gives $100,000,000 for St. Louis in only five years, it may be increased by the averages of other cities, immediately above and below St. Louis, to give a first general idea of what is going on.

Almost the only way to escape being swamped by it is to keep St. Louis in mind in measuring the whole.

St. Louis' figures of the cost of new buildings and improvements from January 1, 1905, to December 1, 1910, foot up a total of $138,953,419 from these annual totals:

| | |
|---|---|
| 1905 | $23,434,734 |
| 1906 | 29,938,693 |
| 1907 | 21,893,167 |
| 1908 | 21,190,369 |
| 1909 | 23,733,272 |
| 1910 (11 months) | 18,763,184 |

When, with 1910 a month short, these annual totals give an annual average of $23,158,903 for the period 1905-1910, local patriotism in St. Louis is already pretty well aware of the importance of the record in demonstrating local greatness.

The scarcity of paving brick is hampering the improvement of streets in St. Louis. Contracts have been let for many miles of streets that will not be finished this year because of the inability of contractors to obtain brick. St. Louis contractors have often been hampered before by lack of material, but the difficulty this year is said to be greater than it has been in former years.

One of the municipal journals contained an article recently on the subject of the scarcity of brick. The Galesburg, Alton and Streator (Ill.) plants, the article said, are working overtime and are unable to supply anything near the demands. In this article it is stated that Peoria, Ill., contractors have bought the output of the Clinton, Ind., plants and are having it shipped for the improvement of Peoria streets, contracts for which are behind schedule.

The St. Louis Street Commissioners, says the Board of Public Improvements, did not expect all of the contracts awarded this year to be even begun this fall because of the scarcity of brick, but were awarded during the last summer in the expectation that contractors would be able to get their orders in early and obtain brick early next summer.

The Master Builders' Association, an organization of the building industries of the city, whose purpose is to prevent strikes, has been tentatively created and its organization will soon be perfected. The new association is an offspring of the Building Industries Association and its organization has been in progress secretly several weeks.

The system under which the new association will operate will, if effectively carried out, prevent any further strikes of the building trade unionists. Each contractor will be put under bond to obey any labor committee of the Master Builders' Association, to which all controversies are to be referred. If union men in one branch refuse to arbitrate, every contractor in the city will be under bond to stop work on his job and discharge the men in his employ. The bond of the contractors will be $5,000.

To prevent contractors from losing money by having to stop work the members agree to refuse to take any contract without the strike or lockout clause being in the agreement. In this way, when a contractor is under agreement to complete a piece of work by a certain time, the clause will save him. This is an important proposition to the brick manufacturers, as they are all indirectly interested in its working.

## CONDITIONS IN KANSAS.

Coffeyville, Kan., January 1.—That the beginning of the year 1911 will be dark for brick plants manufacturing building brick (unless there is an unexpected demand for their product), and that several throughout this section will shut down, while the paving-brick plants will enjoy a steady run, is the opinion of brick plant managers

A few building brick plants (some in Oklahoma) have already ceased operations and are cutting prices in order to obtain the business. The scarcity of water is given as the reason for the shut-down, but it is generally conceded to be on account of a surplus, with no demand in sight, a result of the havoc wrought by concrete construction.

The past summer, fall and winter months have been ideal for building, but the call for building brick has been, and is now, comparatively light.

On the contrary, the demand for pavers is great and there is no immediate indication that any plants manufacturing this line of brick will shut down on account of a surplus.

The Standard Brick Co. has an order for 2,500,000 No. 1 pavers for the Stuckey Construction Co. for Wichita paving. The Coffeyville Vitrified Brick Co. and the Coffeyville Shale Brick Co. have orders equally as large. The latter plant, which is at present running on face pavers for building purposes to fill a large order, is enjoying a good run, but will shut down when the order is completed for repairs, which will require about three weeks.

Roofing-tile factories have no fear of idleness, as the demand for their product is steadily increasing, and those in this locality are behind in their orders and more are constantly coming in.

The same is true of pottery factories. The orders for spring delivery, which are taken in December, will keep them busy until the middle of the summer, thus giving them a steady run.

## TEXAS SCREENINGS.

Austin, Texas, December 7.—The continued activity in the building trade in the cities and towns of Texas is very gratifying to the brickmakers of the state. It is stated that the prospects are favorable for an unprecedented number of new buildings to be erected during the next few months, and that the demand for brick and other construction material will increase instead of diminish. It is only within the last few years the era of modern office and business buildings was inaugurated in Texas. In Austin, San Antonio, Houston, Dallas, Fort Worth, Waco, El Paso, Galveston and many smaller towns, numerous buildings of eight to twenty stories are now being erected or planned. While the severe drouth in the northern and western portions of the state has affected building operations to some extent in certain towns and localities, the commonwealth as a whole is exceedingly prosperous. This is particularly true of South Texas, where the farmers are not dependent upon the rainfall, but grow their crops chiefly by means of irrigation.

The wonderful development of irrigation enterprises has also had the effect of creating a big demand for drainage tile in some sections. In the lower Rio Grande valley, where many thousands of acres of rich land have been reclaimed and placed under irrigation during the last five or six years, the large canal companies are providing for carrying off the surplus water by installing extensive systems of drainage. While this is largely done by open ditches, the use of tile for the purpose is coming more and more into use. The farmers of that section are also beginning to realize that in order to keep their land in prime condition the drainage of same by systems of underground tile is necessary. It is a new thing for that section, but the success that has been had by the men who have adopted this method of drainage promises to cause its rapid spread. It has been demonstrated that underground tile drainage not only serves the purpose of mellowing and making the soil more productive, but it also carries off the alkali that constant irrigation brings to the surface.

One thing that has tended to retard the use of tile drainage in many parts of Texas is the low price of land. Farmers were not inclined to invest in tile drainage as much or more than their land was considered to be worth. In the lower Rio Grande valley, and many parts of the Gulf coast territory, land values have now reached that point where the owners feel that they can invest in this improvement. In fact, this underground drainage is beginning to be looked upon as a necessity by many farmers.

Referring to the increased demand for brick, it is notable that this material is being largely used in the establishment of new towns in what was formerly the exclusively ranch regions of the state. Some of the buildings in these new towns, which sprang up almost in a day, equal in size and construction those in towns that have long been upon the map. The demand for brick from this source has led to the establishment of a large number of brickmaking plants in the newly developing territory.

In many of the cities and towns of the state, tentative plans are under consideration for considerable street paving during the coming year. The demand for pavers promises to be very brisk. The past year was a good one in Texas for this material, and it seems to be coming more and more into favor by the different municipalities.

Dr. William B. Phillips, of Austin, director of economic geology in the University of Texas, has recently been making an investigation of the clays of the state. He says that in no other state is there such an abundance and widely distributed wealth of clay material, some deposits of which are exceedingly rare and highly valuable.

The announcement recently came from Alpine, Tex., that a large deposit of high grade fire clay had been discovered in that country.

## HOOSIER NOTES.

Indianapolis, Ind., December 12.—Unless the coming session of the Indiana Legislature modifies the present laws of Indiana in regard to street paving it is believed that the paving brick business in Indiana during the next two years will not be any better than it has been during the last two years. The past year, especially, has been bad for the paving business in this state. The last session of the General Assembly passed some new laws on this subject. Formerly when a street was improved the total cost was assessed against the abutting property. This was the law for years. But the last Legislature passed what is known as the Thornton law, which provides that when a street is paved only the cost of the improvement in front of abutting property shall be assessed against such property, and that the cost of street intersections shall be paid for out of the general fund of the city.

Many of the cities of Indiana were already up to their debt limit and had no money and no means of raising money with which to pay for the paving of street intersections. Therefore, all paving work had to cease. This left the brick street business up in the air all over the state. At Terre Haute, for instance, it is said that there are at least thirty petitions on file which could not be acted upon because of this handicap. Many other cities are in the same position.

Another drawback to the brick paving business in this state just now is the provision in the paving law which states that when a city decides to improve a street, plans and specifications shall be prepared for four different kinds of pavement. Bids are taken on all four kinds and then the property owners choose the kind they want after the bids have been submitted. Only resident property owners are entitled to a voice in the choice of a pavement material and they only are entitled to sign a petition for the improvement of a street. This makes it easy for the asphalt people to buy a petition for a street, for there is no competition among them. In some cases, two or three resident property owners can control the situation. In such a case the asphalt people can bid any price they please for the street and get it, because they can induce a sufficient number of resident property owners to vote for their material to carry it through.

It is different with the brick people, among whom there is competition. But even this has not brought much business for the asphalt people, because they run up against the provision requiring the city to pay for the street intersections, and this puts a stop to the plan in many places.

Another thing that has handicapped the brick people, in this state in the last two years, is another little provision that was put into the paving law at the last session of the legislature. It provides that country roads shall be improved only with gravel or broken stone. This shuts out brick. Several counties in the state were contemplating paving main roads leading into cities and this would have been done had it not been for this "joker" which was slipped into the road law.

Every main road leading into Muncie is paved for a distance of about two miles from the city limits. As a result the vehicles come into Muncie with clean wheels, and Muncie is today one of the cleanest towns in the country. Other cities would like to follow the lead of Muncie, which did its paving before the new law was passed, but they cannot do it.

An effort will be made at the coming session to amend the law so as to allow the cities to go ahead with the improvement of their streets. Practically no paving is being done now. It is the hope of the street and road material people and the contractors to change the law so as to relieve the cities from paying for street intersections and charging the cost, as it was charged under the former law, or in some other way that will be equitable. This will be the main effort. Then they will try also to repeal the gravel and broken-stone restriction for country roads. If the latter should be done it would result in a wonderful era of road improvement all over the state.

An association was formed here in Indianapolis, within the past few weeks, composed of owners of property along three main roads leading north from this city, for the purpose of trying to have the law changed so as to permit them to pave those roads with brick from the city to the county line, about twelve miles out. They say they believe the increase in the value of their lands will pay for the improvement and that they are willing to stand the expense. They argue that a land owner ten or twelve miles out could come into the city in an automobile on a paved road as quickly as if he lived a few squares out and used a street car in the morning. They declare that the improvement would result in the land along these roads becoming thickly populated with a desirable class of people.

The building brick business in Indiana, during the past year has been excellent and there is great promise for the coming year. There has been more building construction work done in Indiana the past year, than in any previous year in the state's history. Vitrified building brick has come into very general use in this state, especially for the better class of buildings. The tallest building in the state, the Lemcke Annex, fifteen stories high, in this city, is just nearing completion, and vitrified brick have been used for the outside work.

## FROM THE CITY OF BROTHERLY LOVE.

Philadelphia, January 1.—The pages have closed for the year of 1910 and a new one is opening. The past year has been a very good one, some years may have been better, but as a whole it was not so bad. There has been considerable paving work done this year in this city and some of the contractors have had very good outside contracts. The city has this year been more particular than ever before as to the proper methods of laying brick, as there had been many complaints regarding this public work. The mayor got after the contractors and kept good track of the work and also promised better inspection by the city authorities. There has been a good amount of building this year and the contractors have had a fairly busy season. Some large work has been done in the way of big office and business structures, factories, etc.

The demand for brick for the erection of small houses in the outskirts and suburbs has been very strong. All the brick made here find a ready sale in this city and large amounts are used, of paving, building and fancy brick. The price has been kept up fairly well, at times the large buyer has had the advantage, but generally fair prices prevail. The brick plants have had a moderately good year for common and paving brick and are looking on the bright side for the future trade.

Fire brick has also met with a good sale and prices about as usual. Sewer pipe, flue linings, and other clay-made lines have been in good demand.

While collections have been slow at times, still business has been fairly good and not many complaints made. The various firms have handled about as many brick as in other years, but the profits have been cut down some by the strong competition and the high price of all materials, labor and other expenses.

The coming year, we think, will be a good one. While building operations now are slow, we look for a lively time this spring, summer and fall. The outlook is good, there is less uneasiness among the various trades, and a more general buying movement is expected. The builders, supply dealers and others who buy supplies nave not been stocking up much, as they seem to be holding back. But we hope there will be a more general buying movement.

The Clearfield (Pa.) Brick Manufacturing Co. have made various improvements and enlargements to their works, which puts this firm in better shape. This modern plant has turned out large amounts of fine clay and silica brick.

The North Philadelphia Brick Yard has had some large contracts during the past year and have kept their plant busy.

The Federal Terra Cotta Co., manufacturers of architectural terra cotta, have opened their new plant at Woodbridge, N. J. The plant is a good one and has only been built a short time.

The Corry (Pa.) Brick & Tile Co. has enlarged its works and have had a busy season.

J. H. Keough of Clymer, Pa., will put up a brick plant at Blacklick, Pa., to develop the fire-clay business.

Henry Jenkinson of Perth Amboy, N. J., will establish a brick plant at Plainfield N. J.

The Shaw, Watts & Bateman Brick Co. will manufacture brick at Williamstown, N. J.

The Kittanning Brick & Fire Clay Co., near Wickboro, Pa., have a fine new plant built and are operating their mines by electricity. The plant now has a capacity of 150,000 high class brick a day. The main office is at Kittanning, Pa.

Edward Brown & Son, 311 Walnut street, now known as the Brown Instrument Co., have opened an office in the Oliver Bldg., Pittsburg, in charge of W. H. Gibb.

Joseph Oschwald, a contractor of Newark, is now operating the Lupton-Bushnell brick yard at Cliffwood, N. J.

L. & R. Wister & Co., of this city, having a branch office in Pittsburg, 508 Frick Bldg., have been appointed general agents for the National Glass Brick Co. The brick is made of cement, clay and other materials and has a glass front.

John Goodwin has built a large brick plant here across from his present works, at Twenty-seventh and Westmoreland streets. Mr. Goodwin sells about 10,000,000 brick a year.

S. B. Dobbs, who has an office here and at Baltimore and Washington, handles a great deal of tapestry brick, which is a first-class, high-grade brick. He has placed in the different cities some large orders for this brick and is keeping the manufacturers busy to supply them.

The Drummond (Pa.) Sewer Pipe Co., which plant was idle for a year, have been doing business all this year and have had some large orders.

The Tempost Brick Co. of Manown, Pa., have built enlargements to their plant and put in new machinery. They have had a busy year and have shipped brick all over the country.

The United Fire Brick Co., of the Arrott Bldg., Pittsburg, Pa., with three plants at Uniontown, Pa., are reporting a good business and a steady operation of the plants. This firm have had big contracts for the new coke ovens built around Pittsburg.

Jacob J. Bram of Perth Amboy, N. J., has organized a company to manufacture brick, and has put in a general line of machinery.

The St. Charles Brick Co., near Kittanning, Pa., whose plant has been rebuilt since the fire, has put in an entire new equipment.

The Cliffwood Brick Co. of Cliffwood, N. J., have put in two new dryers and the capacity of the plant is now 54,000 brick a day.

R. B. Seidel, making crucibles, has built an addition to his plant on Callowhill street, which gives him 1,680 square ft. more room. W. G. Rowell, who was with W. G. Rowell & Co. of Bridgeport, Conn., is salesman for the concern.

T. B. McAvoy & Sons have had some excellent paving contracts for the past year.

The Alumina Shale Brick Co. of Bradford, Pa., have built new kilns at the Alumina and P. B. McNaughton plants.

The C. P. Mayer Brick Co. of Bridgeville, Pa., have put up two new kilns and now have a capacity of 50,000 brick daily. The improvements cost $10,000 and electricity has been installed.

The New Jersey Clay Co., with offices in Newark, N. J., has been incorporated.

The O. P. Brick Co. of this city has incorporated to manufacture and deal in brick, with a capital of $400,000.

The Glenwood Brick Co. of Erie, Pa., is a new concern to make high-grade building and paving brick, with a capital of $40,000.

The Bloomsburg (Pa.) Brick Co. is a new concern to manufacture building brick, with a capital of $30,000.

## KANSAS CITY AND THE SOUTHWEST.

Kansas City, Dec. 20.—The one topic of conversation that is sure to be heard wherever two brick men happen to meet is the continued dry weather. It has become a very serious matter in the states of Kansas and Oklahoma, and has caused the shutting down of many brick plants, and some of them on very short notice. According to reports coming from that field the drouth has reached a point where many streams have stopped running, which have never failed to run before, in the memory of the oldest inhabitants, and as many of the brick plants in these two states were not even pumping water from a running stream, but depended upon mill ponds or wells, it is a wonder they held out as long as they did. Brick manufacturers have been accustomed to a dry fall. We always have it in this section of the country, but they figured that rains would come in ample time to keep up the water supply, as it had been doing for years. The first thing some of them knew their wells began to go dry, and they were forced to quit operating their plants, closing up the business of the year without further ado. Others saw their ponds going down, so they filled up their kilns and then shut down for the season, while those who were lucky enough to have running water to draw from have been able to keep on until a later date, and even some of these have now drawn their limit and have shut down.

Plants in Oklahoma and Kansas which are still in operation will probably continue without shutting down throughout the winter, and they ought to do a pretty good business, as there should be a good shipping demand from this time forward to southern points for common brick.

Plants able to turn out anything like a good paving brick are loaded down with orders, and most of them have their output sold well up into the coming summer. Not many of these plants have been forced to shut down for lack of water. It is said that cities have greatly modified their specifications as to the quality of paving brick, as they found it was impossible to get enough brick to come up to the severe tests which were formerly made. Such points as have not modified their specifications must content themselves to wait until the brick they need can be produced by the plants which are able to produce the desired quality, and then they must pay a little higher price for them.

So far as paving brick manufacturers are concerned, in this territory, the coming year can hardly be more profitable than the past, as they have had absolutely all they could do and were compelled to turn down business right along. Of course the few plants which have shut down on account of dry weather may be able to make a better showing in 1911, but that will be the reason.

The manufacturers of common brick in this trade territory for the past year have not generally made money, because the price was held very low throughout the year by competition. Such plants as were under the best of management, and had good selling connections managed to pay their regular dividends, but they were the exception rather than the rule.

Manufacturers of face brick state that they have had a slow business, as the consumption this year was below the average, but the prices held firm and there was some money made on what was sold.

Kansas City local plants are now nearly all shut down, and will remain closed until early spring, most of them figuring that it will be time enough for them to come in for the big early spring demand, but some will run spasmodically throughout the winter, keeping plenty of brick on hand to supply their needs. The Diamond plant of the Kansas City Hydraulic Pressed Brick Co. expect to keep in steady operation throughout the winter.

There is every indication at the present time that the coming year is going to be a record-breaker in the way of demand for brick. In the first place there is a vast amount of building, which it was planned would be done in 1910, which never matured. The plans were all made and everything ready for the contractor, but the builders expected to borrow the money they needed to pay at least 40 per cent of the value of the work. Money tightened up until they could not get favorable loans, either in amount or at a satisfactory price. These contracts are ready to let as soon as satisfactory loans can be made in the spring, and it is stated that the loan people are ready to advance the money now at any time it is wanted, on favorable terms. The only exception to this is on flat buildings. They are refusing to loan money on flat buildings unless it is for a very small part of the cost. For any other class of building they are ready to loan, and this should mean the regular amount of new building the coming year outside of the large amount carried over from the past year.

According to reports coming from the various points in the southwest, which usually draw upon this section for brick, the same money conditions exist there, and they expect to start up early with their building. In the south, where winter building is the rule, it is likely that operations will begin at once, while there is plenty of labor to be had.

The Pittsburg Vitrified Paving Brick Co. reports a good output from the plant in Pittsburg, Kas., and as the sales run a good ways ahead of the deliveries they will run right along through the winter, hoping to avoid a shut-down entirely. As they get their shale with a steam shovel, and thus work on a perpendicular face they will not be bothered in the least by wet weather when it comes, as plants would which were depending upon scraping from a level surface.

The Union Brick Co., of Iola, Kas., reports running right along to the present time, and expects to continue regularly through the winter. This company has plenty of water and plenty of gas, having drilled nine gas wells on its own property during the past year, which will probably make them independent for some time to come.

The death is reported of C. M. Downing, 62 years of age, a contractor of this city who has been associated with F. J. Shinnick in brick work, and erected several of the office buildings of the city when brick was considered the only material from which to construct office buildings. He came to Kansas City in 1878.

The Buffalo Brick Co., of Buffalo, Kas., is busy erecting a boiler and power house 65x65. It is to be built of brick, with cement floors and a steel-truss roof.

The Sixela Fire Brick, Pottery & Coal Co. has been organized in Texline, Tex., by S. C. Walker, and will establish a plant at that point.

The Osage Manufacturing Co., which maintains general offices in Joplin, Mo., is about to begin the erection of a brick plant in Nelagony, Okla., with a capacity of 100,000 brick per day. J. S. Roberts is president and W. B. Cline is secretary and treasurer.

The Dalton Brick & Tile Co., of Poplar Bluffs, Mo., has increased its capital stock from $10,000 to $25,000.

The Afton Brick & Construction Co., Afton, Okla., has begun operating its plant, and will have a daily output of 40,000 brick.

Nicholson Bros. have united the offices of the Altoona Brick Co., of Altoona, Kas., with that of the Union Brick Co., of Iola, Kas., both plants being owned by them. The Altoona plant is closed.

The Moline Brick Co., of Moline, Kas., has been reorganized, the officers now are: Philip Walker, president; J. J. Webb, vice-president; J. H. Houck, secretary; E. G. Chaffin, treasurer, and W. S. Houck, general manager.

The Tyro Vitrified Brick Co., of Tyro, Kas., has been forced to shut down for the season, on account of lack of water. Operations will begin again in February.

T. W. Ellis is planning the establishment of a brick plant in Orange, Tex.

The Osage Brick Co. has been incorporated in Iola, Kas., with a capital of $160,000, by Frank C. Nicholson and A. H. Campbell, of Iola, and H. G. Young, of Charleston, W. Va.

The Seco Pressed Brick Co. has been incorporated in D'Hanis, Tex., with a capital stock of $40,000, by Louis Rothe, Peter Koch, E. R. Leinweber, Joe Ney and others.

J. W. Carlin & Co., of Pittsburg, Okla., propose establishing a brick plant with a daily capacity of 15,000 to 20,000.

The Muskogee Dry Press Brick Co. has been incorporated in Muskogee, Okla., with a capital of $30,000, by S. J. Allen, D. Rodgers and others.

The U-Knit Brick Co. is reported incorporated in Guthrie, Okla., with a capital stock of $25,000, by Wm. Taylor, Scott Braden and others.

## WEST VIRGINIA.

Wheeling, W. Va., Dec. 24.—There has been evidence of increased activity among the clay working industries of West Virginia during 1910. This is proved by the number of new firms that have been chartered during the last twelve months to go into this business.

While there has been more or less apathy among the sewer pipe plants of the northeastern part of the state, yet the paving brick and paving block manufacturers have been disposing of all they could make.

Building brick has had a good year, and the manufacturers have been planning for a duplicate of this large business for 1911.

A number of plants idle during 1909 started operation during 1910 and these still continue on the active list.

In the central part of the state, and especially in the Huntington, Charleston, Clarksburg and Fairmont districts, there has been no end of private building, and the demand for brick for this purpose has been exceptionally good, exceeding that of 1909.

The Colfax Brick Co., at Fairmont, has closed its works for the winter, J. L. Johnson, superintendent, is arranging to build some new kilns this winter.

A clay products factory will be erected by Samuel V. Crum, at Wayne, W. Va., to manufacture fire clay products. The plant will be in operation by summer. Bids on machinery will be asked for at an early date.

The new brick plant of the West Virginia Clay Products Co., which is to be located on the line of the Coal & Coke Railroad about two miles from Charleston, is now under construction. It is the intention of the management to manufacture at least 75,000 brick a day, as well as other clay products. Charleston capital is interested in the project.

There is a movement under way at Huntington to organize a company for the manufacture of fire clay products. The works are to be located either at Fort Gay or in the vicinity of Huntington.

Many improvements are being made at the plant of the Riverside Pottery in the North End, Wheeling, and after two months' work four new kilns have been erected. It is possible that another kiln will be built and the four started in the next month. Applications have been received from many local potters who are now employed at the Homewood (W. Va.), pottery at Mannington, and many more local men will be able to work here.

The National Fireproofing Co., of Pittsburg, has received the contract for the Boy's Dormitory, being built by Bethany College, at Bethany, W. Va.

The secretary of state at Charleston has issued incorporation papers to the Kingsport Brick Co. A $50,000 plant is being established by President J. D. Whitaker, of Atlanta. The plant is being established on the land of George S. Carter.

The Columbia Tile Co., of Grafton, W. Va., has been incorporated with $150,000 capital stock by Charles R. Durbin, A. Hood Phillips, Lee Bennett, and others.

The New Cumberland plant of the West Virginia Fire Clay Co. has been improved and enlarged by Balantyne Bros., of Pittsburg, the owners, in order that proper care could be given to an extensive order for shipment to the Philippine Islands. Two 160-horsepower boilers and one 350-horsepower Corliss engine have been installed, while an additional nine-foot dry pan has been ordered, giving the plant three pans. This is the first independent clay plant in the upper part of the Ohio valley, and although starting in a small manner, has grown to such an extent that 50 men are now employed. The order for the Orient was placed by the Federal government.

## THE PITTSBURGH DISTRICT.

Pittsburgh, Pa., Dec. 28.—Face brick manufacturers and architects declare that present indications point to a prosperous year during 1911 in the building lines, and that the use of brick as a building material is rapidly advancing. One architect has advanced the information that 25 new homes in the Schenley Farms territory will be built during the coming spring and summer, and that brick will form the largest part of construction materials.

The erection of a large market house by the city will also mean the use of several million brick, and the building of another hotel in the Pittsburgh district means the further use of brick.

It is also declared that the use of brick and blocks for highway paving will be more general during 1911 than any previous year. Commissioners of the various counties are planning to ask for bids for the building of many miles of highways with brick, and at the same time the State Highway Commissioners' office at Harrisburg is also extending the use of brick and blocks for state work annually.

Refractory material manufacturers are also well pleased over the outlook for an increased business during the coming year, this view being based upon the information that the iron and steel manufacturers have intimated that with the approach of spring there will be an increased production in these lines. All of the large steel corporations share this view. Railroad officials have come into the market with their improvement programs for 1911 and these are of a character which insures considerable buying of rails, rolling stock and motive power.

Throughout the country there is an increased demand for structural steel and the greater the consumption of this material, the more extensive is the purchase of refractory materials for the mills and furnaces.

Year after year the use of hollow tile for building purposes is growing. In Pittsburg proper there has been a prohibitive clause in the building codes against the use of this material, but the matter of changing these codes is now up in the Pittsburg councils, which will alter past conditions and thereby permit a more extensive use of this worth-proved building material.

A director of the National Fire Proofing Co., in discussing the business outlook for the new year, said that conditions for a continuance of building activity are most promising. The company is figuring on an Ohio contract which will call for the expenditure of $1,500,000, and numerous other large contracts are also being figured on.

Inquiry comes principally from manufacturing concerns, showing that the latter have faith in the immediate business future. All of the companies' plants are running full time, turning out fire-proofing hollow tile.

The inquiry from prospective home builders is also large, as hundreds of letters are being received asking for information regarding fire-proof construction and the new Natco hollow tile residence which the company will put on the market early in the new year. The company is now furnishing material for a number of eastern skyscrapers. There also has been an increased demand for conduits.

The new plant of the Diamond City Brick Co., at Wilkes-Barre, has been opened, and as the company sent out a large number of invitations to business men and others, the opening of the new property was under the most favorable circumstances.

An estate estimated to be worth $31,000, of which $23,000 is realty in Pittsburg, is disposed of by the will of John W. Beckett. The testator's brick manufacturing business in the Nineteenth ward is given to two sons, Edmund W. Beckett and William Beckett, who are to pay to the widow, Mrs. Susan E. Beckett, $900 a year during her life, or until $15,000 is paid. The remainder of the estate is to be put into the brick business as a working capital. Beckett died Nov. 24.

At Brockwayville, the Shawmut Vitrified Brick Co. had an unusually successful year during 1910. The firm has been disposing of its product as fast as it is made.

One of the largest jobs done in this city during the last two months was that of the erection of the new publishing house for the Pittsburg Press in Oliver avenue. Toronto (O.) block were used in the walls and the building is seven stories in height. When completed over $100,000 will have been spent on the improvement.

The McFeely Brick Co., with offices in the Diamond National

Bank building, will apply for a charter at Harrisburg Jan. 5. This is listed as a foreign corporation and it seeks to have a Pennsylvania charter issued. The matter is in the hands of Attorney F. B. Hargrave.

The following quotations of the various grades of brick in the New York market have been received by Pittsburg selling agencies:

(Dealers' prices to consumers)
Cargo lots, delivered, cars, New York.

| | | | |
|---|---|---|---|
| Front, buffs, No. 1 | 28 00 | @ | 30 00 |
| Grays, shaded and speckled | 32 00 | @ | .. |
| White, No. 1 | 32 00 | @ | .. |
| Hudson River, common | 5 25 | @ | 5 50 |
| Light, hard | 4 00 | @ | 4 25 |
| Pale | 3 00 | @ | 3 25 |
| No. 1 fire, American | 25 00 | @ | .. |
| No. 2 fire, American | 20 00 | @ | .. |
| Scotch | 35 00 | @ | .. |

The Phoenix Fire Brick Co., of Bolivar, Pa., has been formed with a capital stock of $5,000. J. B. Hammond, W. P. Hammond and B. F. Reese, of Bolivar, are the incorporators.

Bradford Pressed Brick Co., of Bradford, Pa., has increased its capital from $20,000 to $200,000.

The Franklin Brick & Clay Co. has been formed with a capital stock of $10,000. Treasurer Charles A. Hile, of Lumber City, Pa. Directors are Charles A. Hile and George L. Hile, of Lumber City, Pa.

The first shipments on a large contract for brick were sent by the Monongahela Clay Manufacturing Co. to the Vesta Coal Co., of Coal Center, which has begun the erection of a large battery of coke ovens on its property in the vicinity of Centerville. The Vesta Coal Co. has a large acreage of coal in that district, the total running up into thousands of acres, and it has been determined to locate a large coke oven plant at that place.

The Monongahela Clay Manufacturing Company has become the owner of the Kate Manown lands, adjoining its brick plant. The tract consists of 13 acres. The company bought the property to purpose securing material for its plant.

The Ardmore boulevard, between Wilkinsburg and East Pittsburg, a distance of four miles, is to be paved with brick. The contract has been let by county commissioners to Booth & Flinn, of this city, the paving is to be 18 feet wide and parallel the Ardmore street car line. Wagon traffic between Wilkinsburg and East Pittsburg has been over the Greensburg pike, a macadam road, there being a hill out of Wilkinsburg with a 14 per cent. grade with a descent into East Pittsburg equally as steep.

Johnstown capitalists have purchased the Apollo Silico Brick Co.'s plant at West Apollo and have taken over the works. The purchasers are Attorney Bruce H. Campbell, John H. Waters, W. H. Hill and Joseph Waters, and the price paid for the property is understood to have been $30,000. The owners announce they will increase the capacity of the plant, and improvements will be made to that end. The plant consists of five kilns and the daily capacity is 15,000 brick.

The Freeport Clay Products Co. have been working to make brick in January. A gas well is down to a depth of 1,500 feet with a flow of 250,000 feet for every 24 hours, but for a permanent flow the company drilled into the "Speechy Sand."

The Franklin Brick & Clay Co., of Lewisburg, has filed notice of an increase of stock from $5,000 to $15,000. It was recently chartered by residents of Butler.

A charter was issued to the Salina Fire Brick Co., of Greensburg, with a capital of $5,000 by Philip Shoemaker.

The West Branch Fire Brick Co., of Williamsport, is building a railroad from the clay mines to the plant at Drurys Run.

The Eldora Brick Co., of Reynoldsville, is erecting a new kiln. Thomas W. White is at the head of this concern.

The Corry Brick & Tile Co., of Corry, Pa., has secured the contract for furnishing the brick for the new Y. M. C. A. building in Erie.

The commission appointed early this year to revise the building laws of Pittsburg, has practically completed its task and it is expected that an ordinance will be presented to councils shortly which will permit of the unlimited use of the terra cotta block, certain classes of which have been barred as a building material.

Archie Sproul, of Jeannette, went to Hamilton, Canada, to build one of the largest brick plants ever erected in the Dominion. The plant when completed will have a daily capacity of 100,000 brick.

The old brick plant at Meredith, Pa., has been razed and everything is in readiness to go ahead with the construction of the new plant just across the railroad from the site of the old. T. W. White is the general manager.

The drying building of the plant of the Allen Paving Brick Co., at Guth's Station, a frame structure 150x80 feet, was destroyed by fire. Howard L. Wheat is the superintendent. The company had $12,000 insurance.

Fire of unknown origin at the Harrisburg Clay and Brick Works, three miles east of Mt. Holley, on the Philadelphia & Reading Railway, destroyed the entire plant and damaged much machinery.

At Ellwood City, Pa., a company is being formed to manufacture shale brick for paving purposes.

A brick making plant will soon be established near Lonaconing, Pa., by James Weit.

## NEBRASKA NEWS.

Omaha, Neb., Jan. 1.—Reviewing the past year we find that business has been generally prosperous with the brick companies. Good business has been enjoyed in all lines. More paving has been done in Nebraska and western Iowa than for any one year for a long time. Brick has figured largely in these contracts, especially in the smaller towns which have just started the improvements. All over the territory large quantities of the material have been used in building of blocks and houses.

The Fremont Granite Brick Co. came in for its usual share of misfortune, and was again badly damaged by fire. They rallied from the effects, however, and are moving along as if nothing had happened. This company was put out of business last year for some time on account of fire destroying the plant.

The Standard Vitrified Brick Co. of Kansas has brought suit against the Metropolitan Construction Co., making the city of Lincoln, Neb., co-defendant. The suit is in the district court and was brought on account of the failure of the Metropolitan Co to pay for material used in the paving of streets in the city of Lincoln.

Lower Brick Co., of which D. C. Shull is president and G. N. Fairchild is secretary, of Sioux City, Ia., has amended its articles of incorporation during the year.

Dr. A. A. Deering, who was a stockholder, director and officer in the Boone, Ia., Brick, Tile and Paving Co., died during the year. At the annual meeting of the company on Dec. 9, resolutions of condolence were passed, signed by J. L. Stevens, C. W. Payne, T. L. Ashford and B. M. Huntley.

The brick company located at Mina, S. D., has been busy during the past week loading out a car of brick.

Substantial investments have recently been made in the bonds of the Black Hills Pressed Brick Co., of Rapid City, S. D., by residents of Hot Springs and Spearfish. All parties putting money into the bonds are owners of stock in the company and it is probable that the stockholders will absorb nearly all of the issue. The company found it difficult to manufacture brick to fill its orders, and at the same time install its extensive additional machinery, and expects as soon as the present orders are filled to close down. Operations will resume when the improvements are completed.

## THE CRESCENT CITY.

New Orleans, La., Jan. 3.—Contracts already let, and bids now being asked for 1911 deliveries, seem to indicate even now that the business for the new year will be far greater than that in 1910, and in anticipation of this increased business there is a movement in some circles for the reopening of several kilns along the Queen & Crescent Railroad system that have been out of business for several years, while the plant of the Salmen Brick & Lumber Co., at Slidell, La., the largest in the south, is being placed on a footing where it can make shipments of from 650,000 to 950,000 brick in about eighteen days, without taxing its resources to the utmost, and the various manufacturers represented in New Orleans by the Mutual Brick & Supply Co., it is said, are preparing for a year's business that will far exceed that of 1910.

The business done through New Orleans during the past year has not been in any sense satisfactory, for although the amount of building operations for the year was about the same as the previous year, still the number of brick used in construction was far less, concrete and stone having taken the place of brick in many instances, while of course practically all of the residences built under a cost of $20,000 were of wood, with a few stucco houses thrown in for good measure. The New Orleans situation is peculiar in that the Salmen people and the eight or ten manufacturers who operate plants along the line of the Illinois Central Railroad and who are represented in New Orleans by one selling agency, the Mutual Brick & Supply Co., practically control all of the trade of the city and adjacent territory. This in a measure practically shuts out all active competition by smaller concerns who are thus forced to look elsewhere for business, and while it may be that the Mutual and the Salmen people are not doing the business they should, yet it is quite possible that other small concerns in this territory are doing capacity business in supplying the trade in the smaller cities and larger towns of Louisiana and Mississippi.

The fact that New Orleans possesses only about a dozen apartment houses, with but half of these of brick, combined with the fact that a continual construction of apartment houses is not in progress here, eliminates the brick question almost entirely from residence houses, for in other cities where a large proportion of the population lives in apartment houses, and where this population is constantly increasing, it is, of course, necessary to continually construct new apartment houses, and as these are generally of brick, the total number of brick used during the year in houses built for residence purposes amounts to far more than the amount used in commercial and public buildings and thus even if mercantile, commercial and other business interests are stagnated and not making improvements, yet it is necessary that residences be built and thus the brick business is not affected to a great extent, but in the Crescent City, where the brick manufacturers depend almost entirely upon commercial and public buildings and work for a market for their output, when business is not up to normal and there is no great amount of public and commercial work going on, the brick manufacturer can not do the business he should. The residence houses are almost entirely of wood construction, what is known as the double cottage, a house divided in the center, with a family living on each side, being in vogue. The manufacturers who sell through this city attribute their decrease in business in 1910 over 1909 entirely to this fact, for the commercial work was not as large as in 1909, while the construction of residences was larger, which would have meant an increased consumption of brick in other cities.

However, quite a few big contracts were closed during the year, the Salmen people getting the bulk of the business, some of their largest consumers were the contractors who constructed the Whitney-Central Bank and Trust Co.'s building, a contract calling for over 2,000,000 brick; the Metropolitan Bank building, Sacred Heart school, Jacob's candy factory, Webster school, T. J. Semmes school, additional buildings at the plant of the American Sugar Refinery, the whole plant requiring 14,000,000 brick in all, the Cameron and Pierson building, the plant of the Fulton Bag Co., the Rickerts' rice mill, the Krauss Co.'s department store annex, the Westerfeldt building and 3,000,000 furnished to the contractors who have under way the drainage and sewerage work for the city. The Salmen people have facilities to deliver 175,000 brick per day to buildings in course of construction by teams, and can, of course, far exceed that number by simple carload delivery to a given point.

The big contracts of the Mutual Brick & Supply Co. during the year included 2,000,000 brick furnished to the contractors who constructed the mammoth refining plant of the Standard Oil Co. at Baton Rouge, La., about 1,000,000 used in the construction of the Penick and Ford factory at Amesville, La.; 1,000,000 used in the construction of new freight warehouses by the Illinois Central Railroad; a first lot of 1,000,000 used in construction work done up to date on the new plant of the Swift Packing Co., at Westwego, across the river from New Orleans, and the regular yearly contract with the municipality for 1,500,000 brick per year.

The smaller independent plants have not been able to get into the game on a large scale to any great extent, possibly the largest independent order placed in some time was recently given by the contractor building the new United States postoffice to the Kent Brick Co., for 2,000,000 brick, to be delivered to that job during specified periods of 1911.

It is estimated by E. H. Michel, local manager of the Salmen Brick & Lumber Co., and by B. F. Schriever, local manager and treasurer of the Mutual Brick & Supply Co., that 3,000,000 brick will be required to fill the demand at the opening of 1911, with, of course, a great deal more needed as the month of January progresses. Additions to the plant of the Standard Brewing Co., demands for material to be used in the plant to be put under way at once for the newly organized Union Brewing Co., additional construction work at Marquette University, and for brick to be used in constructing a building for the southern headquarters of the Mergenthaler Linotype Co., and for additional freight sheds for the Louisiana Railway & Navigation Co. will require a great deal more, and as both Mr. Michel and Mr. Schriever are considered the two best posted men in this territory on all things that pertain to brick, their estimate of the needs of the contractors are accepted here without question.

The pressed brick market has also suffered a considerable depression during the past year, and this is due in the main to the same conditions that prevailed in the matter in the rough brick field. All of the larger manufacturers of rough brick also burn pressed brick, but there are some plants which manufacture pressed brick exclusively, and these plants have probably suffered more during the year than any of the other brick makers in this territory, for it is but seldom that a contract is divided between two firms when a brick order is given, the concern furnishing the rough as a rule also furnishing the pressed product, and thus the concerns that only put out the latter have had but a limited field in which to dispose of their product.

## MICHIGAN NEWS.

Detroit, Mich., Jan. 1.—A new building record was set in Detroit in 1910. The year far exceeded 1909 returns and building contractors generally concede that 1911 will show a gain over 1910. Several important building contracts were filed during 1910, and reports from different sources indicate that a number of large structures will be completed during the coming spring and summer. Permits for buildings fell off during December, due undoubtedly to the cold month. The months of September, October and November, however, showed big gains over the same periods in the previous year. Favorable building weather prevailed during the time and operations were rushed in Detroit, as well as the remainder of Michigan.

Although early in the season, a number of important building projects have already been announced. The management of the Fairfax Hotel has had plans and specifications prepared for a large annex. The annex will be used as a dining room, and will seat 1,000 people. It will be six stories high and of brick construction. Several motor car companies, as well as manufacturers of motor car accessories, have announced intentions of erecting extensive additions to their plants.

The majority of Detroit brick manufacturers have their yards in Springwells township. A number of them are contemplating opening new yards during the coming spring and summer. William Clippert has announced that he will open several new beds of clay during the spring. He will also have a new yard and his plant will have a capacity of approximately 64,000 brick a day.

Springwells brick manufacturers are also interested in action which has been taken by residents of the district. For some time the different manufacturing plants in the district have been without fire protection, excepting from their private departments. To encourage the locating of industries in the section the officials of the township decided to purchase proper fire-fighting apparatus, and the same has been paid for, the money being raised by popular subscription.

The Sibley Brick Co., located about 12 miles below Detroit, manufactures a white brick almost entirely. Officials of the company have announced that 1910 was by far the most successful year in their history, and prospects for a heavy business in 1911 were very encouraging. In connection with the company's offices are the offices of the Church Quarry Co. The company operates in a hamlet called Sibley, and the houses of nearly all its employes are constructed of white brick. The company is contemplating minor changes in its plant during the coming month.

"Business is quite satisfactory for this time in the year," said the George H. Clippert & Bro. Brick Co. "While December is always a slow month, we believe we had our share of the business along with the rest of them. Prices have shown no change during the month. We anticipate an excellent business in 1911."

"The last year has been an exceptionally good one with us," said the Sibley Brick Co. "Our plant has been running steadily and in view of orders we expect it to continue doing so through the coming year. Prices are being well maintained."

"Business has been quite satisfactory during the past month and 1910 has been an excellent year for business," said the Schneider Brick Co. "Prospects are for a continuing good business in 1911."

Brick manufacturers throughout the state are interested in the possibility of Michigan bricklayers, masons and plasterers enforcing a state-wide scale of wages, to go into effect in the spring. The state association, in its annual convention held in Grand Rapids several weeks ago, went on record as favoring this move. The difference in the rules and wage scale in different parts of the state has long been the cause of much dissension in the organization. It occasioned much misunderstanding among the craftsmen, who would object when they were compelled to accept different working rules in different places, and several strikes have been narrowly averted when these conditions were met. The contractors and builders favor the state-wide scale and working agreement, because of the ready calculation that could be made in bids on work anywhere in the state. The executive committee of the organization will act on the question before the spring work starts.

G. Jay Vinton, building contractor of Detroit, died a few days ago, following a short illness from pneumonia. Mr. Vinton's death is directly traceable to his anxiety over the condition of his daughter, who was suffering from appendicitis. Mr. Vinton's life was one of activity and energy. He was born in Detroit in 1859, one year before his father, Warren G. Vinton, had organaized the Vinton company for contracting and building. Mr. Vinton from his boyhood days took active interest in his father's affairs, and after graduating from high school he entered his father's employ. He later took hold of the business as president, and built it into one of the great building firms of the country. Besides being president of the Vinton company, he occupied a like office in the Manufacturers' Lumber Co., and of the McClure Lumber Co. He was a prominent member of the Builders' Exchange, and of the Detroit board of commerce. Socially he was a member of the Masonic order (thirty-second degree), of the Knights Templar and of the Mystic Shrine, also of the Detroit club and the Detroit Boat Club. He was also well known because of his philanthropic work.

Leebrich Bros., of Midland, will build a tile factory in Midland.

The Superior Construction Co., of Houghton, has filed articles of incorporation.

The Petoskey Home Building Co. has elected Dr. O. L. Ramsdell president for the ensuing year.

## FROM THE NUTMEG STATE.

New Britain, Conn., Dec. 27.—The common brick situation in New England, after a careful analysis, from the manufacturers' point of view, looks brighter each month. November of each year is an excellent one for shipments, as all of the contractors are hurrying up their late work in order to close in before heavy snows catch them uncovered, but this year November was nearly in the lead of any other, as about sixteen million brick were shipped from the Connecticut yards.

December shows up very poorly in shipping, the cold weather having already stopped considerable work. Prices are stationary at $5.50 to $5.75 f. o. b. cars at yard, with a strong tendency among the brick makers to hold these prices up to March, at which time an advance is sure to take place unless a decided slump in building operations intervenes. To realize this pleasant situation the weather must necessarily contribute somewhat liberally, for a cold, close winter would retard shipments.

There are in the Connecticut yards at the present time approximately one hundred and twenty million of burned and unburned brick, which amount is an unusually large one to carry over, and even an average shipment of sixteen million per month, as November shows, would leave quite a quantity still in the yards at the commencement of the making season in April, 1911.

This fact will lead, we believe, to an agreement for a general movement toward a curtailment in manufacture by agreeing to a later date for starting the yards and an earlier closing date. The burning of brick has been quite a problem to all manufacturers this year, as seasoned wood was very scarce during the season.

The coming year looks decidedly promising, as already a large amount of work has been started by the architects. In Connecticut alone about $900,000 has been or will be appropriated for school house work, and the same amount for club, society and fraternity buildings. A large amount of other municipal, also county, work is contemplated, and, with the state work appropriations, $1,500,000 is in sight. A great amount of factory construction has also been decided upon, which means that the brick manufacturers know, even at this time, of at least forty-five to fifty million brick that are sure to be used in 1911. This assurance so early is one of the pleasing situations under the present conditions, and were it not for the excessive stock of brick on hand everyone would look forward to the year 1911 as possibly the banner one for Connecticut brick yards. It is hard work to dispel all the gloom that hangs over the brick-making fraternity from the fact of over-production, but if the energy now being used brings forth good results, another year ought to clear the situation a great deal.

The Central Connecticut Brick Co., under the management of E. W. Stearns, has enjoyed a year of very good business with prospects promising for 1911. The eleven manufacturers who put their product through this company feel that all interests have been served alike and with present conditions no better results could be obtained under any other arrangement. This company, without a doubt, has been the most active in the field the past year, having their salesmen covering the territory continually, and the fact of their control of so large an output gives them quite a prestige with the larger buyers, as they feel their interest will be better cared for, as to shipments, which means that this company has secured a large percentage of the general business. It is rumored that some other makers are considering propositions for also entering their product through the Central, thereby increasing an already large company to a much larger and more powerful one.

The Dennis Brick Co., at Clayton, Conn., has been sold to Raymond Bros., of South Norwalk, Conn. The latter are new men as manufacturers, but old in the sense of dealing in brick, as their firm is one of long standing as dealers in building material.

The partnership of Bagley & McDonald, at Westfield, Conn., has been dissolved and it is reported that the yard is for sale.

W. H. R. DuBois, of the building material firm of H. M. Purdy Co., at Bridgeport, is understood to have entered into the Jacobs Brick Co., of Berlin, Conn., and will act as treasurer after Jan. 1.

The Tuttle Brick Co. are still making brick at the rate of 50,000 per day, which goes to prove that they have no fear of anything but a brilliant season in 1911. They are not disappointing their customers, but as usual are sending out by express their beautiful calendars, 45x30 inches, which, when hung in one's office, will not allow a buyer of brick to forget them nor to forget the fact that the Tuttle Brick Co. have been makers of brick since 1842, as this fact appears in "loud" letters and figures in the center of the calendars.

The Spiers-Fish Brick Co., of Boston and New Hampshire, report a favorable outlook for the coming year. They believe that enough brick are now on hand to care for the demand until new brick are in the market.

The Boston and vicinity situation in the building line just at this time is decidedly inactive, owing a great deal to weather conditions, but all expect in the early spring a large amount of new work to come out. A peculiar condition exists in Boston, which is not by any means a healthy one, and this is, that brick are now being sold there for less than during the brick-making season. This is accounted for, without any question, from the fact that there has been an over-production of brick through New England and every brick maker in this territory looks upon Boston as a dumping ground. Therefore, some brick makers who feel that they have too large a surplus on hand, rush to Boston with ridiculously low prices in order to unload away from their home market and thereby obtain quick returns. This, of course, is business, but rather unfair to the brick makers whose natural market is Boston.

Mr. E. L. Cook, of Bridgewater, Mass., has doubled the capacity of his power plant during the year by installing a 250 h. p. Harris-Corliss engine, has also installed a system of electric lighting and added a large addition to his steam dryer. He reports quite an amount of brick on hand and discontinued making Dec. 17 until early spring. He is looking forward to an active season in 1911 and wishes all the clay working fraternity through "Brick" a prosperous New Year.

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## FROM THE PUGET SOUND.

**Seattle, Jan. 1, 1911.**—1910 started with the brickmakers of the Puget sound country all hustling for business at the best prices they could get. This, of course, meant very little profit. Besides this handicap, we find that there are more cement buildings being built than ever before, Seattle having constructed more cement buildings this year than any other city in the United States, with possibly one exception. Of course, 90 per cent of these are fire-proofed by a veneering of terra cotta or brick.

We attribute these conditions to several causes. The architects who are being converted to the use of cement are influenced by several fallacious arguments which can be designated as follows: In concrete construction the skilled expensive labor of the skilled artisan is not necessary. There are rumors that certain architects are paid a commission on all cement used in the construction of buildings planned by them, but no attention is paid to this by any of the brickmakers.

In one large concrete building that is under construction here, and on which there is a lawsuit pending, there is very scandalous talk to be heard. When brickmakers look around them and see the amount of concrete being used for superstructural purposes, they ask themselves why such conditions should exist? There is only one answer to this question; that is, lack of publicity. Joe Jefferson remarked on one occasion that Richard Golden was the best Rip Van Winkle he had ever seen. All he lacked was good advertising. Well, I think the clayworkers of the state of Washington can do the Rip Van Winkle act better than Richard Golden. You can easily guess what is lacking.

A little incident which occurred in connection with the Bellingham armory, which is now under construction, will probably be worth telling. The Seattle architect allowed the contractor to put in concrete where good brick had been specified. The captain in charge forcibly charged that the state was being robbed by such rank substitution. Weighing only 135 pounds, this was a large statement for him to make, and the architect, who weighed 200 pounds, on meeting him proceeded to give him a severe beating, which he succeeded in doing, being out of the captain's class, thus bringing no honor to himself or any discredit to the captain, who has invoked the aid of the law in this dispute. Our sympathies are with the captain.

There was a large fire in Tacoma last week, another hard knock to concrete. The brick walls were not even marred. The owner will build a four story brick to replace the former one story building, using the old brick to help construct same. Could he have used any concrete after it had gone through a holocaust?

The Abrahamson Co. have had a very successful year, selling all the brick they have manufactured, which I should judge to be about seven millions. The Builders Brick Co. have also had a good year, making and selling nearly ten million brick. This will be the second best year this company has had, 1907 being the banner year.

The Hill Brick Co. and the Harper-Hill Co. combined yards will also make a good showing, according to the general manager of both yards, Mr. W. C. Morse. These two yards have made and sold fourteen million brick. The Lohse Brick Co. has done a satisfactory business, making and selling approximately six million brick.

The Ballard Brick Co., after making about one million brick which cost them more than they could be sold for, suspended operation. This yard undoubtedly has the finest clay bank in the country, but no one has been able as yet to operate it profitably, owing to its situation geographically.

The Lake Union Brick Co., which has the finest location for a brick yard on the Puget Sound, has not made a good showing so far, not being able to operate their new Youngren kiln successfully. It has been a losing venture for them up to the present time, but Mr. Dinham, the manager, informed the writer only last week that they were getting better results now after a long, hard, profitless struggle. They were indeed fortunate in having such a wealthy capitalist behind them.

Mr. Powers, of the Pontiac Brick & Tile Co., when he looks at his bank balance, feels very much satisfied with himself and his associate, Mr. Dennis. They have made about six or seven million brick this year, having on hand only about 600,000 now.

Our old friend, Mr. Robert Niedergesaess, of the Seattle Brick & Tile Co., the oldest and best known brickmaker in the Puget Sound district, is smiling right into next year. He has done so well he hates to tell how much he has made. Not a brick on hand, all sold except a few thousand hollow brick out of 6,000,000 which he manufactured on an old Acme machine that Noah discarded as useless the time of the flood.

The Goss Brick Co., of Tacoma, apparently have had a good year. The Steele & Steele Brick & Tile Co. are still playing futures with a very poor past, showing no dividends as yet. The Puget Sound Brick Co., which started this last summer, was put out of business by the wet weather and their clay bank sliding.

The Tacoma Trading Co., after operating successfully for several years, run out of clay, and the owner, Mr. Barlow, is looking for a new site to move his machinery and plant on. The Gig Harbor Brick Co. is still experimenting without very satisfactory results as yet.

We had a very successful convention in May of this year. Since that time our secretary, Mr. James Gibson, 1622 Dearborn street, has been tireless in his efforts to get the Oregon clayworkers to co-operate with us on a publicity plan, but up to this time with no success.

## Encouraging Letters from Leading Clay Manufacturers

*(Concluded from page 76)*

their plant recently destroyed by fire and will double their former capacity. The prospects for the coming year in and around Akron in all branches of the clay industry are bright and happy."

**F. M. Morrison, of the Columbus (O.) Contractors' Supply Co.,** has to say: "We have had a very successful year in the brick business and at present are pushing our drain tile with the outlook very encouraging. Business looks good for next year in the brick line with us. We expect to build six 30 foot round down-draft kilns in the spring and erect quite extensive stock sheds."

**W. H. McCarthy, 138 Washington St., Chicago,** says he has had a good year's business. He is showing a new interlocking round tile, which is used in the construction of buildings, which can be plastered inside and out without any lathing, making it especially desirable for the popular stucco construction.

**L. M. Johnson, Mendota, Ill.,** writes: "We have had a very successful season here. We turned out 60 kilns of a superior quality tile and find a ready demand for all our ware."

**C. A. McCloud, secretary-treasurer of the York (Neb.) Brick & Tile Co.,** in a recent letter gives the following report: "The past season has been a good one. We had the largest sale for our brick of any year since commencement of business. Prospects for 1911 are good. We had a big out-of-town trade the past season, and an average local demand at home."

**W. P. Stevens, general manager and treasurer, Henry Stevens' Sons Co., Macon, Ga.,** says in regard to the future: "We see no reason why things should not get normal and have a few years of rest if we can get more of the 'grandstand' politicians quieted and give what few statesmen we have left an opportunity to be heard, and they would quit white-washing investigations and do business for the interest of the public, who it seems have been forgotten."

**The Toppenish (Wash.) Brick & Tile Co.,** with main office at North Yakima, have been operating for the past three years and reports trade has been very good the past season, prices very satisfactory and the outlook for next season very good. Also that there is much building and enterprise all over the Yakima valley, which is an irrigated farming country but a "hummer."

**Capital Brick & Tile Corporation, Washington, D. C.:** The demand for building brick in Washington, D. C., for the year 1910 has been about normal, or just about equal to the supply up to about the middle of October, when orders began to fall off and the supply exceeded the demand, then as usual prices were cut to nearly one dollar per thousand from the former prices, $8.50 and $9. The contractors took advantage of this and gave their orders for large buildings, that will not be erected or completed till midsummer of 1911, to save the difference in the prices they know would maintain at that time, as the demand would then far exceed the supply and prices be governed accordingly. The new buildings for 1911 now being contemplated by the Government and big corporations now exceed twenty millions, besides the usual private yearly demands for brick, which in the past have consumed from seventy-five to eighty millions. The outlook for 1911 therefore looks very good and the big construction companies are quite optimistic over the prospects of a good business year, and the manufacturers of clay building products cannot feel otherwise, and are looking forward to one of the best business years they have had. Many of the companies have during the year spent large sums of money in improvements and facilities to cheapen the cost of making brick, as well as to increase their output per day to meet the demand of the natural growth of this National Capitol city, of these United States, which all Americans are anxious to visit and see its remarkable growth. We earnestly hope the editors of 'Brick' will be among that number, as they are a part of our great builders."

**From the Copeland-Inglis Shale Brick Co., Birmingham, Ala.:** "The building operation for the year in this territory has been above the average, there having been built many warehouses and heavy manufacturing buildings in our community. The most of the buildings have been of a good substantial nature in the way of modern up-to-date homes, which is adding much to our progressive city, which, as you no doubt noticed from our census report, has gained 245.3 per cent in population in the past ten years. This phenomenal growth of Birmingham has attracted the attention of our whole country to our wonderful mineral resources. There is no industry which expects to receive more benefit than paving brick and clay. However, the market price on both paving and building brick, in this district, has for the past few years been low, and rather unsatisfactory, yet the volume of business has aided the manufacturer in keeping up, and they are looking forward to better prices next year The paving brick industries have suffered this year from much delay. While there has been considerable work done, much of it has been held up and will go over until spring. This has caused most of the plants in the south to have considerable stock on their yards. Our southern architects are beginning to appreciate the effect of vitrified paving brick for facing their work, and very artistic results have been obtained. But our extremely mild climate causes the average home builder to use cheaper material, although it requires constant painting to keep up good appearance. Our firm has received its share of business in our territory, yet we have a good big stock on hand with our plant running full capacity."

**The Red River Valley Brick Corporation, of Grand Forks, N. D.,** says their business for this year has been quite satisfactory considering the very short crop in North Dakota and the northern part of Minnesota. While their business was considerably behind last year, yet it is better than anticipated during the middle of the building season, the average selling price of brick being higher than last year, while the cost of manufacture is practically the same. North Dakota being an agricultural state, the building of course depends considerably on crops and the money market of the east, therefore much cannot be expected in the building line until an estimate can be had on crops for next year. In the early part of the season considerable state work is expected, as this is the year the legislature meets and there will no doubt be a large amount appropriated for state buildings and more or less municipal improvements will be made in Grand Forks.

**The Mountville (Pa.) Brick Co.** say: "We are having a very successful season. We are subscribers to 'Brick' and value it highly."

**Aaron Phillips, Bowling Green, Ky.,** says: "There has been no general rush in the past year, but I feel sure that the coming year will be a good one—maybe a record breaker. The main reason is the record breaking crops. The Secretary of Agriculture, in his last report, says the farmer will receive practically nine billions of dollars this year. This breaks all records. I think it is only reasonable in view of the encouraging outlook to predict a big year for 1911. We are expecting it."

**The Progress Press Brick & Machine Co., St. Louis, Mo.,** writes: "We await with interest the coming of your usually splendid New Year's number. We are pleased to say that our business for the year, while not quite up to 1909, has been generally satisfactory and we look forward to a good business for 1911."

**Geo. T. Dickover & Son, Wilkes-Barre, Pa.,** say they have been quite busy the past year, but find work slacking off for winter. Prospects are fairly good for next year.

**Jas. Gibson, secretary of the Washington Clay Workers' Association,** writes us as follows: "The departure of Mr. E. D. Gates, president of this Association, was the occasion of a banquet tendered him by the members of the Association at the Hotel Savoy on the evening of Nov. 22nd. Mr. Gates has been in charge of the terra cotta department of the Denny-Renton Clay & Coal Co., of Seattle, and has taken a similar position with the New York Architectural Terra Cotta Co., New York City.

"Mr. D. F. Power, of the Pontiac Brick & Tile Co., was a most acceptable toastmaster. Toasts were responded to by Mr. Gates; Mr. J. R. Miller, general manager Denny-Renton Clay & Coal Co.; Mr. W. C. Morse, general manager Hill Brick Co.; Mr. W. T. Houlahan, general manager Builders Brick Co.; Mr. John Megrath, president Washington Brick & Tile Co.; Mr. P. S. MacMichael, president Northern Clay Co.; Mr. T. G. Dennis, general manager Pontiac Brick & Tile Co.; Mr. D. L. Farnham, superintendent Denny-Renton Clay & Coal Co., and Mr. Paul Hedrick, of the Seattle Times.

"The general trend of the remarks of the speakers were decidedly optimistic as to the outlook from the brick and clay products manufacturer's standpoint. While universal regret was expressed at Mr. Gates' removal to a larger field of activity, it is believed that the spell of the West will draw him back here again at some future time."

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### AUSTRALIAN NOTES.

The Sydney manufacturer makes a very fine brick. In fact, visiting experts pronounce it the best in the world. It is manufactured of shale with a little moisture added, and dry pressed, the stiff plastic method of manufacture being practically unknown in Australia. The result is a remarkably fine, close brick, almost entirely immune from weather conditions, and intensely durable as a consequence. So rapid is the process that the brick can be placed in the kiln 20 minutes after the material is taken from the pits. British machinery is predominant, Platt's presses being popular.

The proposals agreed to at a recent conference of representatives from the Master Builders' Association of Victoria and the Operative Bricklayers' Society of the same state, on the question of reducing bricklayers' hours of work from 48 to 44 per week, were considered at a mass meeting of employes in the trade during the month, and after a discussion adopted. The proposals are as follows: 1. That the association agrees to 44 hours per week, and one shilling and six-pence per hour, on the understanding that no concerted action be taken by the society to have the wages increased during the ensuing two years. 2. That the society assist the association to have a wages board established to deal with all matters connected with the trade.

As a result of the decision bricklayers in the state will now work for eight hours on five days of the week and for four hours on Saturday, leaving work on that day at 12 o'clock noon, at the same rate per hour as they are receiving at the present time. That will mean a weekly wage for 44 hours of about $16.

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# BRICK
## and Clay Record

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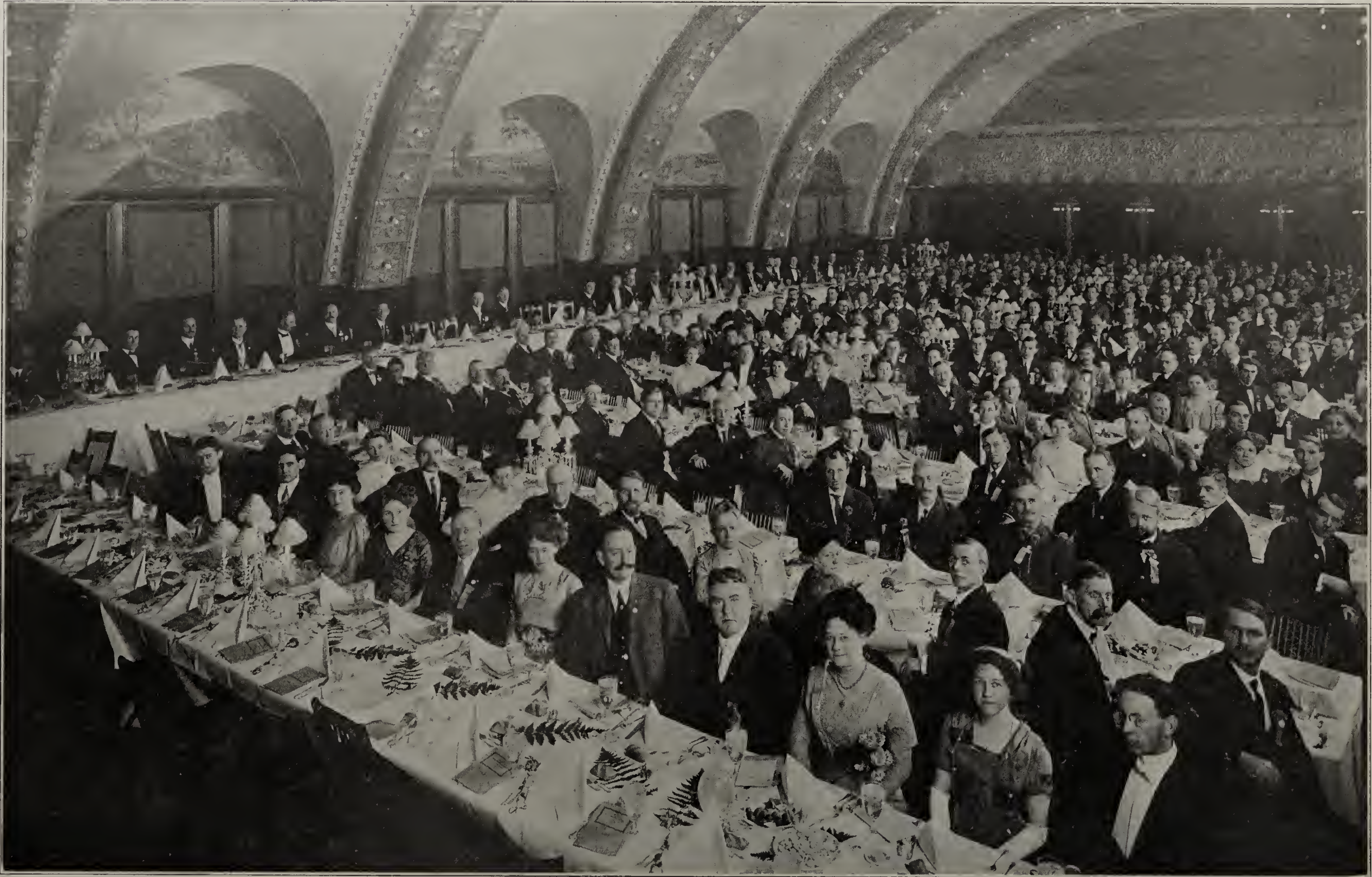


BANQUET OF THE MIDDLE-WESTERS

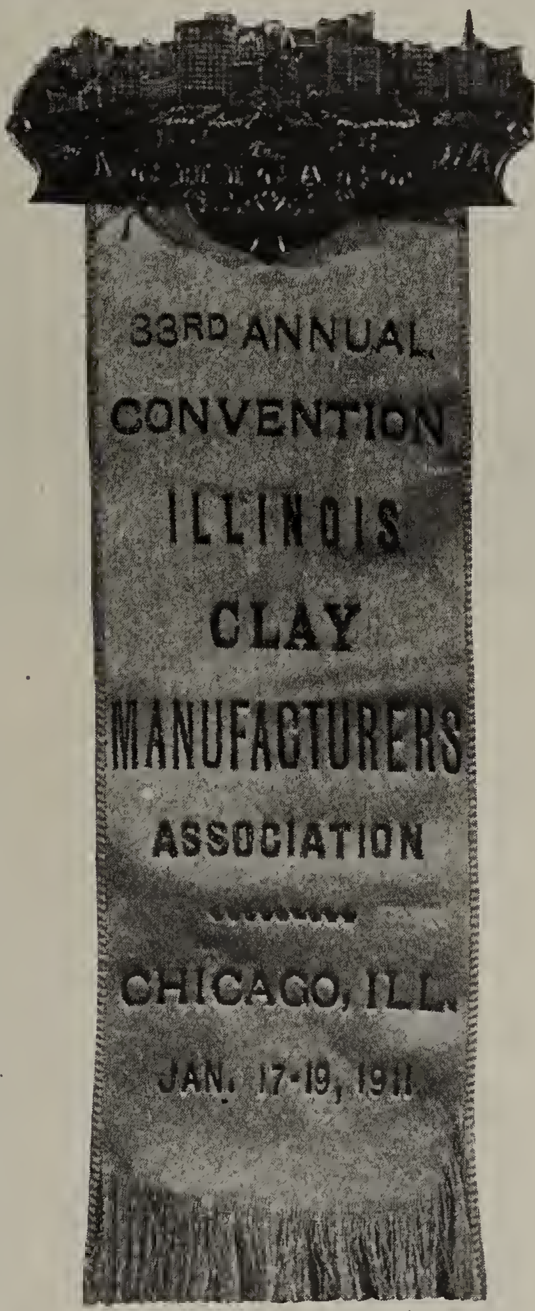
Representative Gathering of Clay Men and Their Chicago Hosts in the Palatial Assembly Room of the Auditorium Hotel

VOL. XXXVIII—NO. 2
# BRICK
AND CLAY RECORD
JANUARY 15, 1911

# CLAY PRODUCTS EXPOSITION

## Middle West Clay Convention a Pronounced Success, with Attendance of Over Four Hundred, Representing Twenty States—Plans Launched for an Annual Show to Demonstrate Superiority of Clay Wares

The best thing that could be said of the big gathering of clay products manufacturers at Chicago during the past week would be that it was a "convention worth while." It was one of the most representative meetings of clay men ever held and it is the general concensus of opinion of those who attended that the Middle West Clay Convention has been a real benefit to the industry, and that a meeting of similar character should be held in Chicago every year.



The Badge of Honor.

The most important work accomplished by the convention and the one thing that will make the gathering historical in the annals of the clay industry, was the launching of a movement to establish a national clay products exposition to be held annually in the city of Chicago, on lines similar to those of the National Electrical Exposition, annual Cement Show, and other events of similar character.

The advantages to the clay industry of such an exposition of clay products has been discussed favorably for many years and it has been generally admitted that the interests of the various lines of clay products manufacture require such an exposition but up to this time it has been purely a matter of talk and the action of the Middle West Clay Convention in taking the initiatory step towards the realization of this idea is greatly to be commended. A committee will be appointed, which will undertake to secure the co-operation of the various associations with the leading manufacturers of clay products and it is expected from the encouragement given, that there will be no difficulty as to ways and means.

It is quite fitting that this movement should be initiated by the Illinois State Association at its Middle West Clay Convention, as Chicago is certainly the most central point at which such an exposition could be held and where same would be most beneficial to the clay interests. It is pleasing to note the selection of Mr. W. D. Gates of the American Terra Cotta Co. as the new president of the Illinois Association. Mr. Gates is a representative clay man and has been very active and prominent in all matters relating to the promotion of the clay interests. He has been strongly identified with the national association and with the furthering of the ceramic department of the University of Illinois and is well known throughout the country. Mr. Gates will be head of an organization which initiates the Clay Products Exposition movement and will appoint the committee which will be in charge of this work. His election insures the continued growth of the progress of the Illinois Association and the furthering of the plan for the annual Middle West Clay Convention.

### What the Movement Means.

The manufacturers of clay products in this country have been somewhat behind the times in the furthering of their own interests in the matter of publicity. The organization of the Building Brick Association of America was the first practical step along this line and the work of that association has already proven of great benefit to the brick interests. The establishment of the clay products exposition will be another step in this direction and it will enlist the hearty support of the manufacturers of all lines of clay products throughout the country. It will give an opportunity to place in a practical way before the public the superior merits of clay products. The paving brick industry will be enabled to demonstrate in an attractive manner the superiority of brick paving. The face brick interests will be able to show the public by actual reproductions, the beauty and superiority of the various varieties of brick for wall facing and architectural effects. Such an exposition will permit a practical demonstration to the public of the possibilities of fire proof construction and the brick, terra cotta and fire proofing interests will certainly find it of advantage to make the most of this opportunity in educating the public in favor of burned clay construction. A number of sewer pipe manufacturers have already expressed their appreciation of the opportunity which this exposition will give them to show to the public the superior merits of vitrified clay pipe and the same can be said of the drain tile industry.

But the lines mentioned form only a small part of what will be shown at such an exposition. The manufacturers of bath tubs and other sanitary ware will certainly desire to make a telling display of their products. The manufacturers of table and art ware will doubtless make extensive displays to show that American pottery leads the world. The roofing tile manufacturers will be glad to further their interests through the education of the public to the uses of clay roofing tile. The floor and wall tile interests will be given through such an exposition an advantageous means for popularizing their attractive and useful products. The manufacturers of fire brick and other refractories will certainly find it of advantage to be well represented at the exposition which will be of sufficient importance to further their interests.

The United States have been somewhat behind the times in this matter. An annual clay products exposition has been held in England for several years with successful results and to the great advantage of all the clay interests. Germany has also held successful clay products shows and it is surprising that this country has been so far behind the times on this important matter. We shall watch with interest the development of this idea and we urge that the clay products manufacturers give their best support and endorsement to this movement.

### Boost for Building Brick.

Another accomplishment of the convention was in the arousing of enthusiasm for the work being conducted by the Building Brick Association of America. The gathering was honored by the presence of Mr. J. Parker B. Fiske, secretary of that association and an important factor in its development. Those in charge of the convention endeavored to co-operate with him fully in promoting the great movement which he represents. The result was that a considerable number of new members were enrolled in the B. B. A. and new enthusiasm aroused among the old members. The Middle West, especially Chicago, has taken a great interest in this movement and is giving hearty support to the association in its work of increasing the popularity of brick as a building material. The convention was addressed by Mr. Fiske and an interesting discussion followed his remarks, which evidenced the favor with which the movement is being considered by the clay men.

### A Real Middle West Gathering.

The roster will show that the convention held in Chicago was thoroughly representative of the clay interests of the great Middle West. Not a state in that great section of the country but what sent delegates and if the representation from the city of Chicago is not considered, the total of the clay products manufacturers present from other states exceeded those present from the state of Illinois. Without other analysis, however, the roster shows a representation of 186 from Illinois, Ohio 54, Iowa 27, Indiana 42, Missouri 11, Michigan 10, Pennsylvania 10, Wisconsin 11, Minnesota 8.

The importance of the convention also attracted clay men from distant points, there being 2 present from the state of Washington, 1 from Idaho, several from Texas Nebraska, Kansas and other states, and also a number from the Dominion of Canada. Not only were those attending representatives of diversified interests including all lines of clay products manufacture but they were leading men in the industry, men whose presence meant something; and one and all, at the close of the sessions, expressed their pleasure and satisfaction with the manner in which the convention had been conducted, and gave their hearty approval to the idea of an annual Middle West Clay Convention.

Special Rock Island Train and its Big Load of Clay Men, Ready for Inspection of the Chicago Brick Plant.

The visiting delegates from other states were especially appreciative of the royal manner in which they were entertained by their Chicago hosts and by the Illinois State Association which had the convention in charge. There appeared to be an almost unanimous desire that the Illinois State Association, because of its central location, should continue to enlarge its scope and value to the clay industry by the holding of conventions which would be of sufficient importance and arranged with sufficient care to warrant the attendance of clay men from the other states of the Middle West.

### The Proceedings.

Without question, the program was of a remarkably strong character and of real national importance. It included technical papers which will form a valuable addition to the literature of the industry. The co-operation of the ceramic department of the University of Illinois, of which Professor A. V. Bleininger is the head, and of the Clay Workers Institute, were of incalculable value. It is possible to publish in this issue only a few of the excellent papers delivered at this convention but they will form a prolific source of interesting reading matter for future issues. It is a fact that a considerable number of those present attended the convention for the sole purpose of hearing certain papers of especial importance and the benefits derived from the production of these papers will be of marked benefit to the industry.

### The Banquet.

Without question the big banquet held in the assembly room of the Auditorium Hotel on Wednesday evening, Jan. 18th, was the star feature of the entire convention. Most elaborate arrangements had been made and the menu and service were all that could be desired. As will be seen by the illustration forming the frontispiece of this number, the banquet hall was artistically arranged and with its brilliant illumination and decorations of flowers and ferns, presented a scene of rare beauty. During the four hours of the banquet there was not a dull moment. During the progress of the repast, the time was enlivened by one of Chicago's leading orchestras, conducted by a prominent entertainer, who led in the singing of various popular songs, song books having been provided each guest, and this enlivening feature added much to the enjoyment of the occasion and filled in what are usually dull intervals between courses. Several well known and popular after dinner speakers were included in the program of wit and oratory which followed the repast. The function was presided over by that well known clay man, Mr. W. D. Gates who acted as toastmaster. Much of the pleasure of the evening was due to his humourous introductions of the various speakers and his own interesting address.

The speakers' table was graced with the presence of a considerable number of men prominent in clay working affairs and it is to be regretted that the time did not permit speeches from more of those present. The opening address following the toastmaster's remarks was made by Judge Geo. H. White, prosecuting attorney of the city of Chicago. He was followed by Wilbur D. Nesbitt, Chicago's funniest funny man and famous after dinner talker, who kept his audience in a gale of laughter for nearly forty-five minutes. Mr. Nesbitt is a native of Ohio but for many years was a resident of Anderson, Ind., and he is a member of that army of famous literati who have of late years made Indiana famous. Mr. Nesbitt has written that successful comedy "The Girl of My Dreams," which has met with popular favor during the past season.

The state of Iowa was most creditably represented in the speech making by the president of its state association, Hon. J. L. Stevens of Boone, Ia., who made an eloquent address of marked interest and importance. The state of Ohio honored the occasion at the speakers' table by the presence of Mr. L. W. Penfield of Willoughby, O., president of the Clay Machinery Manufacturers' Association and a man who has for many years been very prominent in matters relating to the promotion of clay products interests and very closly identified with the industry. Mr. Penfield is an orator of ability and his speech met enthusiastic applause.

The state of Indiana was represented by Hon. W. T. Durbin. The Hoosier state can well be proud of its popular ex-governor, and those present at the banquet were fortunate in hearing his interesting remarks.

The clay industry is indebted to the Building Brick Association of America for the splendid work which that organization has been doing in educating the public to the superiority of brick for building construction and in promoting the clay interests throughout the country. This association was represented at the banquet by its secretary, Mr. J. Parker B. Fiske of New York City, who was especially competent to respond to the toast designated for him, "The Age of Clay." Mr. F. W. DeWolf, state geologist was called upon to make a few remarks and spoke in behalf of the University of Illinois, the ceramic department of which has done such important work in the development of the clay industry of the state.

The Power Behind the Throne. Lady Visitors in the Parlor of the Palmer House. Mrs. G. H. Hartwell, Chairman Ladies' Reception Committee in the Center.

### The Visit to Plant 17.

One of the most important events of the convention was the trip of the clay workers to plant No. 17 of the Illinois Brick Company. A special train carried the visitors over the Rock Island Road on Thursday morning to this plant which is one of the largest and most successful in the Chicago district and which is now one of the few plants in full operation during the winter months. This plant is one of those which have during the past year been electrified and remodeled and which is equipped with the Penfield system of mechanical brick setting. This was one of the special features which made the visit to the plant so interesting for this is the first time that so large a number of clay products manufacturers have been privileged to see for themselves this system in practical operation. No special preparations had been made at the plant and it was being operated in the same manner that it is every day and, therefore, the visitors had the opportunity of seeing exactly what the setting device could accomplish on regular duty and there was a general explanation and satisfaction over the work of this equipment. The Penfield system has been fully described in "Brick" heretofore and it is, therefore, unnecessary to go into details of operation again at this time. All those who took part in this excursion agreed that it was conducted in the most satisfactory manner.

Group One. Pioneer Machinery Manufacturers. At the left is Chas. W. Raymond, head of the C. W. Raymond Co., Dayton, O.; on the right P. L. Simpson, veteran inventor and manufacturer now connected with the American Clay Machinery Co.

### Convention Headquarters.

The venerable Palmer House, famous in the history of Chicago and headquarters for many memorable conventions in past years, was a lively place during the week and it was evident from the start that its facilities were not sufficient for a gathering of such size. Nevertheless, there was no serious fault to find and the entire convention was conducted smoothly and harmoniously and to the satisfaction of all present. The exhibit rooms were very interesting and again proved the fact that no convention can really be successful without the co-operation and support of the manufacturers and dealers in machinery and equipment. All of the leading machinery and equipment firms were well represented, most of them by the senior members and officers and very few conventions have shown a more prominent representation of the machinery manufacturers. These gentlemen report that they were exceedingly well pleased with the convention and its practical results to them in promoting their own interests and it is understood that a number of sales were made during the session. The exhibit rooms were in charge of a committee which did heroic service in endeavoring to please all the varied interests and the best proof of their success was in the fact that there were no complaints as to the arrangements.

Mr. D. C. Haeger, the president of the Illinois Association is to be congratulated upon the successful manner in which the proceedings were carried through. He made an able executive officer and deserves the heartiest thanks of the association and of the fellow officers. The same may be said of Mr. Geo. H. Hartwell, the worthy secretary who has served the association in that capacity for a number of years.

Chicago was called upon for the first time in many years to entertain the clay convention and true to its record "it did itself proud." All the manufacturers and dealers in clay products and the allied machinery equipment interests contributed generously to the entertainment fund and it is largely due to their hospitality that the convention proved so successful. A Glad Hand Committee consisting of all the contributors to the local fund had been appointed and had made Mr. S. T. Jacobs, head of the Chicago Brick Co., chairman. Members of this committee were always on hand at the conventions to make the visitors feel at home and Mr. Jacobs and his associates covered themselves with glory.

## THE PROCEEDINGS.

The gathering of clay products manufacturers. designated as the Middle West Clay Convention, was in fact the 33rd annual convention of the Illinois Clay Manufacturers Association. The sessions were held in the assembly room of the Palmer House, Chicago, commencing Tuesday morning Jan. 17th and it is notable that throughout the various sessions of the convention there was an attendance remarkable for its size and the interest displayed. It is the usual thing that in conventions of this character, a considerable number of those in attendance fail to be present at the sessions regularly and in this respect the Chicago convention was an exception for the convention hall was always well filled.

After President Haeger had called the first session to order Tuesday morning, the convention was formally opened by a prayer and a few interesting remarks by Rev. W. S. Plumer Bryan, of Chicago.

Hon. George H. White, prosecuting city attorney of Chicago, representing Mayor Busse, welcomed the delegates in behalf of the mayor and the city, and gave them a warm welcome. Every license and liberty was assured them and he spoke in a very complimentary manner of the great work in which they were engaged and assured them that Chicago was a city of burned clay.

Group Two. Faith, Hope and Charity—The Big Three. On the right, Mr. Harley H. Fate, burning the candle at both ends. In the center Geo. B. Drennan, vice president of the J. D. Fate Co. On the left, Mr. Wilber Reese, of the Sawyer Belting Co., Cleveland, O.

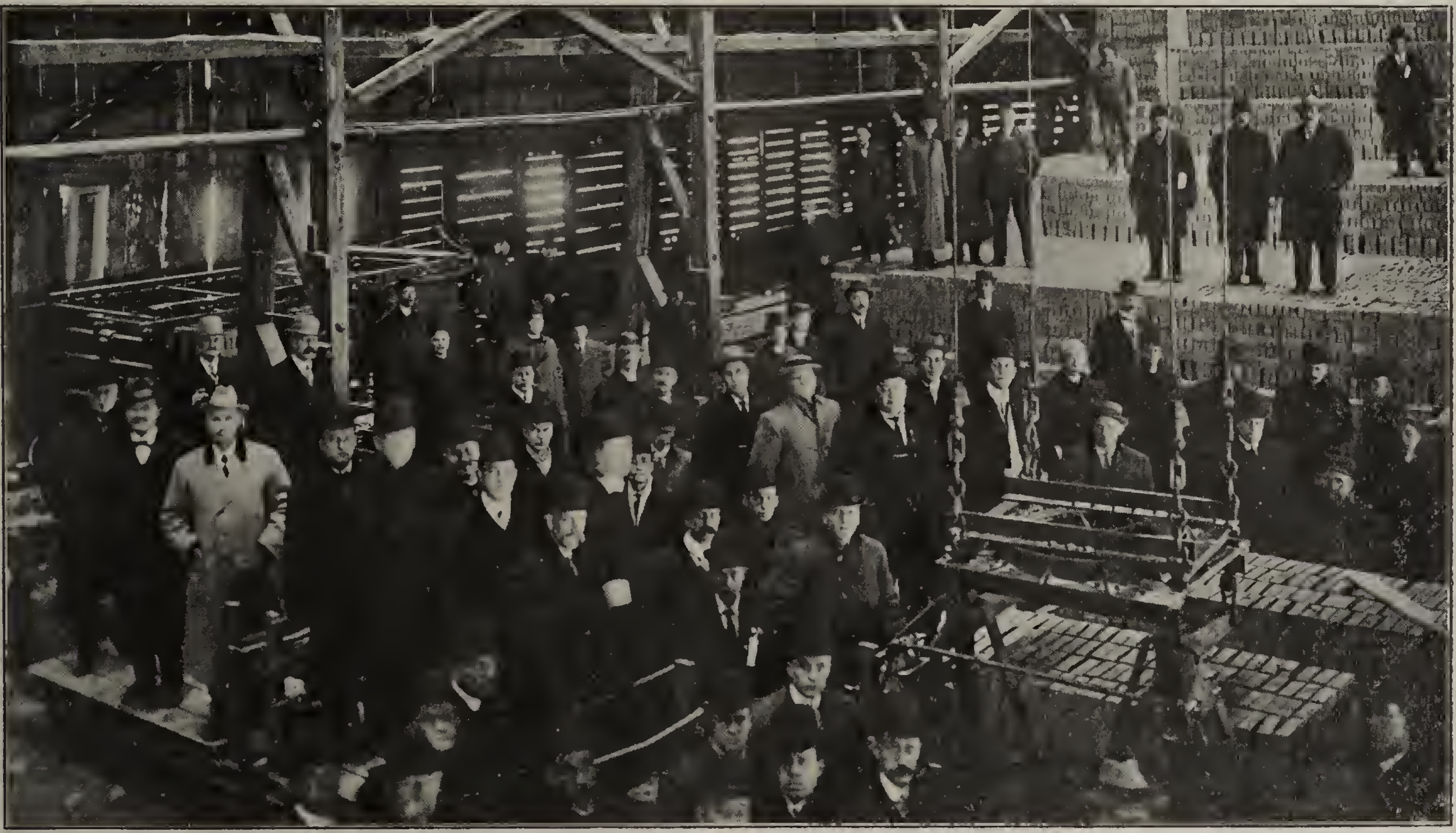
The address of welcome was responded to by Mr. C. W. Lansing, editor of Brick and Clay Record, followed by the annual address of the president.

### President's Address.

Ladies and Gentlemen:—

With greatest pleasure I welcome you to the Middle West Convention, the 33d annual meeting of the Illinois Clay Manufacturers Association. It is a great honor to preside over this convention, the first ever held in this city by this association, and the only clay convention held here in years. Contrary to the usual custom of meeting yearly in the smaller cities of the state, the executive committee decided that the time was ripe for the holding of a convention of clay manufacturers in Chicago.

This city, with its network of railroads, its prominent and influential banks, its well known educational institutions, and its many large manufacturing plants is truly the center of this great Middle West. For the clay manufacturer, Chicago has its up-to-date brick plants, probably the best organized and largest producing of their kind in this country, the product of which goes into the tall and massive skyscrapers, giving to us wonderful examples of the use of clay products. In a social way, this city cannot be excelled, and the clay men of Chicago are here with a "glad hand" extended, and are prepared to give us a most enjoyable time. To the ladies, it is useless to speak of the many places of interest, for the ladies know, better than the men, where the well known stores and theaters are located, and, I am sure, they will be well taken care of. It is, therefore, very gratifying, to the executive committee to see the unusual number here, and to be assured that the right decision was made in choosing Chicago.



Representative Clay Men Inspecting Plant No. 17 of the Illinois Brick Co. and Watching the Operation of the Penfield Brick Setting Device.

Another year has rolled by, and I trust it has been a most happy and profitable one for all. The past year has been one of the great activity in all lines of the clay industry, as the sales of brick in this city, and the demand for drain tile and other clay products throughout the state, will testify. Although, the general business of the country is not running as smoothly as it should, yet the clay manufacturers are to be congratulated upon the wonderful and growing demand for their products. Had it not been for the good crops the past season, the prospects for the coming year would not be so promising. The stock and bond markets being inactive, the past year has seen a boom in the land business, causing a large demand for clay products, especially drain tile. The prices of land are going higher each year, and no landowner can afford to keep any wet or unprofitable land. A better understanding of tile drainage is now had, and the work is much more thoroughly and systematically done.

The increasing price of lumber, together with the poorer quality sold, is forcing builders to look elsewhere for building material, and we find a growing interest in the use of brick, hollow tile, roofing tile and other clay products. Even in small towns, the "gingerbread" frame house with its yearly repair bills is being superseded by the sensible and substantial brick house.

The American people have been called extravagant, and there is no doubt that they are not satisfied to live as their fathers did. The man in the city must have his office in the best of fireproof buildings, must live in a brick house, on a brick paved street, and have all the conveniences money can buy. Outside of the larger cities, we have seen an increased demand for paved streets and sewers, and I trust the day is not far off, when the American farmer will rise up, and demand brick paved roadways, over which he can more profitably haul his produce. While this government is spending millions upon millions of dollars on the Panama Canal, destined to be a great waterway, it seems that the American people should become interested in the vital questions of our roads.

Although the prospects are good for a busy year in 1911, yet the clay manufacturers have many important and serious problems to meet. Competition no doubt will grow stronger each year as the demand for clay products increases, for outside capital, believing the profits to be large will enter the field. New factories will be built with most modern equipment, and the old established plants will have to meet modern conditions.

The time is now at hand when the clay manufacturer, as well as any other manufacturer, should be able, by the aid of cost systems, to determine exactly the cost of each operation in his business. We have heard much the past year of the high cost of living, and no doubt most of us have felt the upward trend of the cost of labor. Only through system, can one get in close touch with the details of manufacture, and be able to determine where the leaks are. With the tendency towards a decrease in profits in all lines of business, the problem facing the clay manufacturer today is that of being able to pay higher costs of labor and fuel, by organizing his factory, and by the use of labor and fuel saving devices.

Group Three. Three Diplomats of the Exhibit Committee. On the left, E. R. Frazier, western representative of Chambers Bros. Co., and a pioneer in the machinery field. On the right, Mr. John Moroney, head of the Chicago Brick Machinery Co., otherwise known as "the King of Ireland." In the center is Mr. H. Tanner, the well known "live one," representing the Chicago Retort & Fire Brick Co.

But the clay manufacturer must not wrap himself up in his own affairs in studying out problems of cheaper production, but visit other factories, where he can always get good ideas. We should all be glad to meet other manufacturers at our plants, and if we have anything good, our fellow workers should be welcome to it. Again, I wish to urge every one to support the various organizations, such as the State Associations, the N. B. M. A. and lastly the Building Brick Association of America. The latter will do grand work in creating the demand for brick, and every brick maker should be enrolled in the good cause. The Ceramic School at our State University needs our support, and although we meet in Chicago this year, we must not lose our interest in the great work this school is doing.

To the smaller manufacturer as well as the large one should come a realization of the importance of the clay industry. The drain tile plants make possible the bumper crops that save the country in time of trouble. The brick and other plants make possible the building of fireproof structures, saving conflagrations with attendant loss of life. So in meeting here, in this great city, builded well of our products, let us take the place of prominence due us. I wish to thank you again for the high honor bestowed upon me, and trust that all attending the first Middle West Convention will have a profitable and enjoyable time.

### The Department of Ceramics.

President Haeger then introduced Prof. A. V. Bleininger, director of the department of ceramics at the University of Illinois, at Urbana, who delivered an address on "The Work of the Ceramic Department at the University."

"This department was established by act of the legislature in 1904-05 with an annual appropriation of $7,500 up to the year 1908-09 when the amount was raised to $12,500. However, from the total appropriation of $25,000 for the last two years the sum of $10,000 was taken for the erection of a small two-story building.

The average attendance of regular students in ceramics up to this year has been twenty. The attendance during this year has increased to 40.

The department offers instructions and laboratory work in 19 courses dealing with the manufacture of all kinds of clay products, from the common building brick, drain tile, terra cotta, firebrick, etc., to the highest class of porcelain and art ware, Portland cement, stucco plaster, glass and enameled iron.

In addition, co-operative work is being carried on with the Geological Survey, in which connection there have been printed, one report on Illinois fire clays, one upon the general formation of clays in this state, and one report upon the paving brick shales and clays of the state. A report upon the cement-making materials of the state is in the printer's hands.

A third kind of work consists in investigations pertaining to the industries in question, which have appeared in 15 bulleins, six of them having been published since the last appropriation was granted.

These publications are as follows: Bulletin 10—A Method Making Possible the Utilization of an Illinois Joint Clay.—A. V. Bleininger and F. E. Layman. Bulletin 11.—A Cheap Enamel for Stoneware, Part Two.—R. T. Stull. Bulletin 12—Notes on the Manufacture of Enamel Brick With Some Investigations on Enamel Brick Slips.—R. T. Stull. Bulletin 13—A Study of the Vitrification Range and Di-Electric Behavior of Some Porcelains.—A. V.

Group Four. Conventioners in the Lime Light. In the right upper corner is A. A. Oldham, head of the well known Bonnot Co., Canton, O. On the extreme left is G. E. Luce, a prominent ceramic engineer. The other two are R. S. Smith and Fr. B. Calmeyer of Chicago.

Bleininger and R. T. Stull. Bulletin 14—Opalescence and the Function of Boric Acid in the Glaze.—R. T. Stull and B. S. Radcliffe. Bulletin 15—Some Chemical and Physical Changes in Clays Due to the Influence of Heat.—J. M. Knote.

In addition an annual manufacturer's institute is held at the convention of the Illinois Clay Manufacturers' Association and an extensive correspondence is carried on with manufacturers and persons interested in the development of the industry.

The annual output of clay, cement and glass products of Illinois is valued at about 17 million dollars per annum, that of the United States about 200 millions per year. Illinois ranks fourth in this respect being preceded by Ohio, Pennsylvania and New Jersey.

Group Five. Some Familiar Faces. Few men are better known in the industry than Anton Vogt, at the right of the picture. M. G. Williams at the left, a name famous in the clay industry in connection with the Williams Patent Crusher and Pulverizer. In the center is O. T. Christiensen, western manager for the Orenstein, Arthur Koppel Co.

The value of these products imported into this state from other states and countries approaches 30 million dollars, which represents money going out from this state for products which might be manufactured at home, since the state possesses an abundance of the raw materials.

The ceramic department of the university could serve the state in the following directions:

1. By developing the home industries of Illinois and cutting down the importation of clay, cement and glass products. Many new deposits of clay and cement-making materials await development, especially the clays and fire-clays associated with the coal horizons which could be mined at very low cost, and at the same time would reduce the cost of coal mining, both in underground and strip mines.

2. By helping to replace lumber as a structural material and reducing the enormous fire losses, for which the United States are notorious, by the use of clay products and concrete. The pro rata share of Illinois in the annual fire loss of the country is about 16 million dollars, which represents a total waste of wealth to say nothing of the loss and injury to life.

3. By assisting in improving the sanitary conditions of our cities and towns by the use of vitrified street pavements, impervious sewer pipes and drains, aseptic glazed brick and tile, sanitary appliances, concrete walks and waterproof concrete construction.

4. By assisting in reducing the importation of European clay products and glass through the development of new industries, such as the manufacture of true porcelain, chemical porcelain and stone ware, optical and chemical glass, art ware, etc.

5. By helping the development of brick and cement road materials for country roads. (Northern Ohio has 600 miles of brick paved country roads.) This applies especially to Illinois lacking in natural road materials and possessing abnormally poor roads.

6. By assisting in the development of a higher general civilization by the construction of permanent, fireproof houses and buildings of an artistic character, made possible by the adaptability of clay and concrete products.

7. By training men capable of taking charge of the clay, glass, cement and enameled iron industries, and of developing them in the most efficient manner.

8. By co-operation with the manufacturers of the state in reducing losses connected with their processes and especially those concerning the use of fuel and in developing new ideas.

The needs of the department are:—

First.—An adequate appropriation for operating expenses covering both the work of instruction and the research work for the state. The amounts necessary per annum for this purpose would be distributed as follows:

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|---|---|
| Salaries of Instructors and Assistants | $ 7,500 |
| Fuel, Supplies and Necessary Operating Expenses | 1,600 |
| Research Work for the State and Co-operation with Geological Survey | 3,400 |
| Total | $12,500 |

Second.—New equipment necessary for taking up more extensive industrial problems than have been attempted so far, especially with reference to the paving brick question, the production of fire-brick and the refractory products,

Group Six. A Snap Shot of Prominent Convention Representatives. Reading from left to right, No. 1 in the lower row is a picture of C. H. Horton, a veteran salesman and manufacturer now representing the Hy. Martin Brick Machinery Co. of Lancaster, Pa. Next to him is S. D. Wright, head of the Atlas Car Mfg. Co., Cleveland, O. On the extreme right is J. W. Hensley, the veteran machinery salesman from Indianapolis, representing in many of the middle west states the Wellington Machine Co. of Wellington, O. In the upper row at the left is C. G. Peterson of Chicago. In the center is Wm. Simpson, sales manager for the Frost Mfg. Co. of Galesburg, Ill., and on the right is H. J. Votaw, the popular salesman of the J. D. Fate Co., Plymouth, O.

and the manufacture of new products from the stone ware clays of the state. The amount asked for this purpose is $5,000.

Third.—Increased space and kiln facilities. In this connection the most urgent necessity exists. In order that the usefulness of this department be enlarged it is essential that a sufficiently large kiln house be provided. The present facilities are entirely inadequate and it is impossible to carry on co-operative work with the clay industries in the way the work should be done, and entirely impossible to push the researches pertaining to the cement, glass and enameled iron industries.

It is proposed to establish a short industrial course during one winter month of each year for the benefit of superintendents, foremen, burners, and others engaged in these various industries. Unless adequate equipment is provided for this purpose, consisting in down-draft kilns, a gas producer, recuperator, regenerator, reverberatory furnace, glass melting furnace, rotary kiln and enameling kiln, it will be impossible to carry out this project. The cost of such a building with equipment would be $21,000.

The present laboratory building, while taking care of the present number of students does not afford room for a greater attendance, and hence it would seem economy to enlarge it. This could be done by completing the building and connecting it up to the kiln house. The cost of this addition is estimated at $24,000.

## DRAINAGE.

The convention was particularly honored by the presence of Mr. C. G. Elliot, chief of the drainage bureau of the department of agriculture. Mr. Elliot came on from Washington, upon the special invitation of the association, although it is a very unusual thing for him to find an opportunity to attend conventions of this character. It is largely due to Mr. Elliot's work that tile underdrainage has made such wonderful progress in this country and the drain tile interests of the clay industry owe him a great debt of gratitude for his efforts in the education of the farmers to the advantages of underdrainage for the greater popularity of the idea tends to promote the sales of drain tile. Mr. Elliot's remarks follow:

"Many interesting memories cluster about the introduction and early development of the drain-tile industry in the State of Illinois. I recall a very unassuming company of tile makers who met at the State Capital, in 1881, to discuss various important features of this subject. It was, if I remember correctly, the second session of what for a decade was known as the Illinois Tile Makers' Association, and whose expansion into the present pretentious organization was but the natural development of a growing and substantial industry. It is not assuming too much to assert that agricultural drain tile is the basis of the brick industry in the state as well as an important factor in the development of the agricultural interests of the commonwealth. It has made possible the substantial structures and attendant improvements in our towns, the commodious dwellings in our rural communities, and has imparted that air of prosperity in all quarters which we now contemplate with pardonable pride. The mention of a few significant facts will serve to emphasize these statements. According to the reports of the Federal Land Office, the state has accepted 1,500,000 acres of swamp land which was ceded to it by act of Congress in 1850. About 1-24 of the entire area of the state was originally classed as "Government swamp lands," but by reason of the beneficent effect of drainage they are now wealth producing sections of the state. Once they were malarious and health destroying, but are now healthful, fruitful and pleasing to the eye. Statistics show that the towns on these level areas which have been well drained are even more healthful than those upon more sightly situations along the banks of permanent streams.

### Growth of the Tile Industry.

The rapid growth of the tile industry in the state during its early history is shown by figures which were collected by the Secretary of the State Board of Labor Statistics. From such data it was estimated that in 1888 drain tile were in use in 98 of the 102 counties of the state, and that 70,000 miles of tile drains, representing an outlay of $18,000,000, were then in operation. Eight hundred and twenty-four factories were making drain tile in 75 different counties. It was also estimated that upwards of $2,000,000 had at that time been expended in making large open channels for drainage. In the history of that movement we find that the railroad companies were not unmindful of the importance of draining the lands in the vicinity of their lines, and freely distributed pamphlets describing the possibilities of drainage and suggesting methods of securing it. They also gave reduced freight rates to shippers of drain tile, which were greatly appreciated by farmers and helped to extend their use.

The result, as might be expected, was a great increase in the production of farm crops throughout the state. Some alarm was felt in certain quarters lest there should be an overproduction of corn and that prices for that important cereal would fall below the cost of growing it. Lectures were prepared to set forth the great variety of uses which were being made of corn and pointing out the limited area in the country which properly constituted the "corn belt," for the encouragement of the grain growers of Illinois. As is now well known, there was no occasion for serious solicitude regarding the future of this great cereal. It might be said in passing that probably no land in the world responds more quickly to tile drains than the prairie lands of Illinois. It is related by Motley in his history of the Dutch Republic that when the Duke of Alva entered a certain city of the Netherlands no salute was fired as would have been proper, but, instead, a delegation from the city council appeared before him desiring to present 39 good and sufficient reasons for the omission. *First,* they had not cannon. *Second,* they had no powder. *Third*—but the Duke waived the recital of the other 37 reasons. However numerous might have been the reasons for using drain tile, the fact that they gave the landowners abundant returns and became a permanent improvement to the land were sufficient to establish their value in agricultural operations.

### A Tribute to Early Tile Makers.

This introduction is a digression from the special subject which we have for consideration. I cannot, however, refrain from here paying a tribute to the early makers of drain tile to whom brick and other industries, as well as the agriculture, of the state owe so much. They are worthy of a high place among our captains of industry. In the city of London stands St. Paul's Cathedral, the admired of every visitor, the pride of the English people. Upon a tablet of that structure appears the name of the architect and builder, Sir Christopher Wren, and beneath his name are inscribed these words: "If you would behold his works, look around you." No other monument is found—no other is needed. So I may say regarding the early tile makers of the state, some of whom have passed away: "If you would behold their works, look around you."

The art of tile draining has been developed step by step until it may now be regarded as both a science and an art. For the purpose of indicating the character of the experimental development of underdraining, I take the liberty of quoting from an address prepared in 1854 by Mr. J. Bailey Denton, a widely known English drainage engineer of experience and scholarly attainments: "I have been connected with drainage sufficiently long to be a witness of the complete overthrow of several opinions which have prevailed for the time and I am bound to acknowledge that every day's experience, while strengthening some views and modifying others, is proving to me that I have been as frequently wrong as the rest of my brethren, and that after all the intelligence and outlay that have been brought to bear on the subject there is much to learn ere it can be said that we are perfect in the art of draining. It is plain, therefore, that we ought still to receive with respect, opinions based on experience even though those opinions may differ from our own." It is eminently fitting that we, at this latter day, bring the same candid spirit of investigation to all industrial problems we are called upon to consider.

Group Seven. W. R. Cunningham, American Clay Machinery Co. Al Barron, Chicago. A. W. Aylesworth, Bonnot Co. E. M. George, Chicago.

### A New Benefit Derived from Draining.

When my attention was first called to the effects which followed underdraining it seemed that the mere removal of surplus water from the soil was not a sufficient cause for the salutary effect which draining had upon the crop production. New life, vigor, and nutriment seemed to be imparted to the plants and continued with them until they matured. We were contented to ascribe such benefits to better aeration, more uniform temperature, and improved mechanical condition of the soil. We have learned in recent years something of the office of nitro-bacteria in converting free nitrogen of the air into soluble nitrates which are required to nourish growing plants. The presence of oxygen and the increasing warmth and uniform conditions of moisture brought about by good drainage are conducive to their multiplication and activity. They are found to exist in temperatures of 41 degrees, but are most active in soils with temperatures of 70 to 90 degrees. They do not flourish in saturated soils. These minute but important makers of plant food follow the introduction of drains and make known their presence by the thrifty growth of all cultivated plants. In this way drains not only develop latent fertility, but indirectly become manufacturers of plant food.

### Experiments Relating to Porosity of Tile.

The porosity of tile as a factor in drainage has, from time to time, been advocated by manufacturers and has even gained a place in agricultural literature. This property is not infrequently referred to, particularly by those who are not familiar with current drainage practice. Some experiments were recently made by our office at Washington to ascertain the value of this property in practical drainage. Medium soft tiles made of brick clay were selected and when immersed they absorbed about 20 per cent of their own weight of water. When subjected to tests for several days the following conclusions were deduced regarding the facility with which water under the most favorable conditions would pass through the walls of the tile. In case a field were drained with lines of 6-inch tile of the quality experimented with, laid 50 feet apart and no water permitted to enter through the joints, it would require 139 days for them to remove ¼-inch of water in depth from the land. In case 3-inch tile were employed, it would require 250 days to accomplish the same result. In other words, if the joints of a drain composed of these tile were closed it would require 139 and 250 days, respectively, for them to accomplish the drainage which is ordinarily required in one day. Dr. W. I. Chamberlain made some experiments a number of years ago and concluded that if land were dependent alone for drainage upon the water which passed through the pores of soft drain tile it would never be drained. An interesting demonstration upon this point was made last year by the State Agricultural College at the New York State Fair. A series of so-called porous drain tile, closed at one end, were filled with water and allowed to remain during the week. Attention was called to the fact that though no water was added, the tiles remained nearly full. These conclusions regarding porosity might be further corroborated by examples from the field where occasionally tiles are so closely joined that water does not enter the drain in sufficient quantities to serve the required purpose. While many common difficulties which are encountered in draining would be overcome if tiles with closed joints could be used, the fact remains that their usefulness depends upon the soil water entering the drain at the joints.

### Change in Practice as to Size of Laterals.

One phase of development which is particularly noticeable, since the introduction of under-drainage, is the increasing size of tiles which are used for lateral drains. At one time 1-inch pipes were regarded of sufficient size for laterals in England. Large numbers of 1½-inch tiles were used in draining Central Park, New York, and 2-inch tiles were generally employed when under-drainage was first introduced in this country. At present, no smaller than 3-inch tiles are

Group Eight. F. Freese, Jr., Janesville, Wis. W. A. Louden, Fairfield, Ia. Geo. B. Drennan. F. Freese, Monroe, Wis. A. G. Wheat, Emmetsburg, Ia. Wm. Simpson, Galesburg, Ill. H. J. Votaw, Plymouth, O.

used, and 4-inch and even 5-inch for laterals are considered superior to smaller ones even in hard-pan and gumbo soils, where frequent drainage is required. The fact that drain tiles have a double office to perform, that of a conduit for air as well as water, is fairly well recognized by careful observers in soil physics. The use of the larger lateral drains in many cases produces a more salutary effect upon close soils or those which are difficult to drain. At all events 4-inch lateral drains are in more general use in the Middle West than those of smaller size.

### Open Ditches Replaced by Large Tile.

Another development of vast importance to clay workers is the demand for pipes ranging from 18 inches to 36 inches in diameter, which are now so frequently substituted for open ditches in main drainage works. This bold movement in agricultural drainage is peculiar to the Middle West and has imposed new requirements upon tile manufacturers and upon engineers, due to the fact that greater strength of pipe is required than has been found necessary in ordinary drainage, and that a nicer adjustment of hydraulic factors is required in order to secure necessary economy and efficiency. So far as the writer is informed, no other country uses large drains of this character for purely agricultural purposes. The further extension of this class of work will depend largely upon the ability of manufacturers to meet the severe tests to which drains of this kind are subjected.

The opinion has often been expressed by manufacturers and others that all our lands would soon be drained and the demand for tile would cease. It is true that but a small part of the 824 factories which were in the state 20 years ago are now in operation. The factories which are now supplying the demand are equipped with the best machinery obtainable, have good clay at hand, convenient shipping facilities, and are permanent industries, as distinguished from the larger part of the old-time factories which were temporary and could only supply a local demand. Drainage as an agricultural improvement is more wide-spread and general than has heretofore been known in this country. The gradual reclamation of lands in the south and east is creating a demand for drain tile in localities where it has never been used. There are 25,000,000 acres of land in sight which will, within the next 15 years, demand drain tile in the natural course of their development for agriculture. More intensive cultivation of the sections which are reputed to be thoroughly drained will create a constant though not large demand for tile, while the desire to more completely utilize valuable land will require that open ditches be converted into covered drains. With respect to the continued use of tile in well-drained countries, I was surprised to learn two years ago that a single brick and tile factory at Cambridge, England, annually sold about 2 million feet of drain tile. As further evidence that they are in continual demand in that country, I found one owner of land who had just placed an order for 150,000 feet of tile to be used on his estate.

### Tile Needed for Draining Irrigated Lands.

Some statistics recently gathered indicate that there are not less than 800,000 acres of irrigated land in the west which require draining. Some of this area is abandoned and useless because of over saturation and because of the evils which follow in the train of seepage. The opening up of newly irrigated lands is yearly increasing the areas which require draining. While wooden box drains are used in many localities, drain tiles are more desirable and should be employed whenever they can be obtained. Small tile have but a limited use in draining irrigated lands, the sizes best adapted to the work ranging from 6 to 12 inches in diameter. Drain tile factories will be needed in the west to supply the demand which is becoming more pressing each year. The very best material is required for this work since drains must be laid at considerable depth and are subject to corrosion by alkalies which are present in the soil and in drainage water. It is a field destined to enlarge and become immensely important to the West.

### Extension of Tile Drainage in Europe.

It may be interesting to note that the extension of drain tile in agricultural operations is not confined to the lands of this country. The farmers in the Harrlem Mere, the great drained lake of Holland, are introducing this improvement on their clay lands. Field drainage is ordinarily accomplished by parallel ditches which take the form of deep furrows. These are being replaced in some instances by drain tile and level surface culture substituted for the ridge method. A farmer who had installed drains of this kind informed the writer that his grain was more uniform in quality, that the management of the land was much more convenient than is the case under the ridge system, and that in his estimation the cost of the change would be returned in the profits of two years. He predicted that the tiling of lands in the Harrlem Lake district would be generally adopted.

The most unique field for the use of drain tile may be found in the moor lands of Germany. These have long been celebrated in poet's song and upon painted canvas, yet in their natural state they are worthless for growing plants, a barrier to travel between different sections of the empire, and forbidding to the prospective home-maker. There are more than 5,000,000 acres of these lands, most of them in government ownership, which yield no revenue and support but few people. Existing as they do in this land of intensive cultivation and in full view of people of acknowledged industry and scientific attainments, it is a matter of surprise that no greater progress has been made in utilizing them. Notwithstanding the efforts so far made to reclaim and utilize this vast area of waste land, only about 15,000 acres have been converted into productive fields. The upland moors are covered with the ordinary heather which, when in bloom, has the appearance of red clover. In late years the government has established experiment stations, having for their sole object the reclamation of moor lands. As may be readily inferred, the first step in reclaiming them is drainage. The land is virtually a bog with water lying at the surface and held throughout most tenaciously by the vegetable, spongy material of which the moor is composed. In the most approved process of reclamation as now determined, drain tiles 2 inches in diameter are laid in lines about 65 feet apart and 3½ feet deep. The very salutary effect of this drainage combined with subsequent special treatments of the lands has proven that they can be reclaimed and cultivated at a profit, thus adding another to the already long array of testimonials which stand to the credit of the unassuming drain tile.

It has doubtless occurred to the thoughtful observer that further investigations will reveal better methods of drainage in which the tile will be the principal agent in the perfection of agricultural practice. Many of our lands require the conservation as well as the removal of the surplus moisture. Drainage in its largest sense should regulate and control the rainfall for the betterment of the soil. In all of these operations we must look to the drain tile as our most willing and effective agent in securing those conditions of the soil which are required to bring our useful plants to their greatest perfection.

### Wednesday Morning.

The first on the program for the Wednesday morning session was the appointment of several committees, as follows. Committee on Resolutions—C. W. Lansing, chairman, Chicago; J. W. Robb, Clinton, Ind., and G. C. Stull, Chicago. Committee on Legislation and Advice—Frank W. Butterworth, chairman, Danville, Ill.; J. W. Stipes, Champaign, Ill.; Dr. A. L. Converse, Springfield, Ill.; W. D. Gates, Chicago; Wm. Hammersmith, Lombard, Ill.; A. W. Gates, Monmouth, Ill., and C. C. Barr, Streator, Ill.

The committee on nominations was deferred until the afternoon session.

Mr. Geo. Tate volunteered to read the paper on "Reverse Drainage or Sub-Irrigation," by D. H. Anderson, editor of the "Irrigation Age," which had been passed at the Tuesday session. This was interesting and called for some discussion.

**Group Nine. J. T. Thompson, Lorain, O. C. E. Merry, Chicago. D. D. Deeds, Lorain, O., Head of the Thew Automatic Shovel Co.**

Mr. Wm. P. Blair, who was on the program to read a paper on "Brick as a Paving Material for Towns and Country Roads," not being present, the subject was passed.

Prof. Bleininger then read his paper on "The Tunnel Kiln," an important treatise which will be published in our next issue.

### Boosting Brick.

The representatives of the face brick interests of Chicago are deeply interested in the movement inaugurated by the Building Brick Association of America and have organized an auxiliary association of their own to work in harmony with the national body. It was at their request that Mr. Fiske was invited to attend this convention and many of them participated in the discussions which followed his address.

The work accomplished by the Building Brick Association of America was fully explained by Mr. Fiske in his remarks. He showed how the work had been handicapped through the lack of sufficient funds and it is surprising that such splendid results have been secured through the comparatively small expenditure already made for advertising purposes. The B. B. A. has conducted two great contests among the architects of the country and through these has secured a large number of beautiful designs of brick houses. These designs have been published in book form and these books with others concerning the advantages of brick construction and its comparative cheapness have been extensively distributed throughout the country with the effect of greatly popularizing brick for residence building.

The address of Mr. Fiske attracted a large attendance at this session and great enthusiasm was manifested. His remarks will be published in full in a latter issue.

### Wednesday Afternoon Session.

The delegates were late in returning from lunch and it was after the appointed time before the afternoon session was called to order.

The opening was a very interesting address by Ernest Reckett, Certified Public Accountant, of Chicago, on "The Cost Keeping for Brick Plants."

This was followed by a pleasing address, which was much enjoyed, delivered by Mr. Roger B. Coombs of Chicago, on

### The Rejuvenated Principle in Brick.

A prominent Chicago insurance man, before leaving for a year's trip abroad, gave one of our leading architects a commission to build him a brick house. After stating the size and the number of rooms he wanted, he said, "The rest is up to you"

The first time the architect met the client after his return he asked him how he liked the house. "Well, I expected a new house," he answered, "but the walls of this house look a hundred years old and a good deal like some of the old ruined buildings I saw across the pond. When I first saw the house it was a good thing that I did not see you, but the more I see of these walls the better I like my house. It grows on me and I must admit I am glad now it does not look brand new."

This, I believe, illustrates the topic upon which I have been asked to write. The present tendency of brick architecture may properly be called a rejuvenation or reproduction of the highest achievement in bricklaying as developed through past ages. Here again there is nothing new under the sun.

Going back century after century, we find that brick of various colors and sizes were laid in complicated bonds to secure results consistent with architectural designs of the period in which they were used, and we see the art of brick construction developed to its highest form about the Tudor period, 1485 to 1603, at which time were produced some of the best effects in brickwork, as we may observe in Layer Marney Hall, Essex, built about the

Secretary Geo. H. Hartwell.

year 1500 of red brick, ornamented with blue vitrified brick in diaper work, trimmed with buff colored terra cotta. Compton Wynyates Manor House, in Warwickshire, also stands out prominently, built of red brick in about the year 1520. Sutton Place in Surrey is also one of the grand old illustrations, built about the year 1525. Kentwell Hall is another rare specimen, built about the year 1562. One of the most prominent buildings of the Tudor period is Hampton Court Palace, just outside London, which was built in the early part of the 16th century.

In glancing briefly at the history of architecture in brick, which leads us back to the early days of Italy, Spain, Germany and England, we find that ecclesiastical buildings, as well as universities and the great houses of the nobility, were built of brick, in size about half what we make them today, but with a richness in tint and shade which has been intensified through ages of exposure.

These were rough, ill-made and of many forms, in texture, similar to the brick used today in our most admired buildings.

In 1666 the great fire of London destroyed most of the city, which was then built of timbered buildings filled in with brick nogging.

This conflagration caused a demand for fireproof structures in the rebuilding of the city, and brick was turned to, as the only material considered safe and fire-resisting.

I believe this convention will pardon my digressing from the subject to state that every modern conflagration has proven that our old London forefathers were right in selecting brick for the purpose.

Then followed a demand for brick that encouraged the manufacturers of the period to make a better product than had ever before been produced.

Up to this time we find that all the brick made were rough in texture and of varied shades. About 1672 we see the style in brickwork changing from the rough face to that of the smoother effects, but still of various shades. The smooth surface was obtained by rubbing the face of the brick.

Brick still stood out boldly as the building material most suitable to use in order to carry out design of color and delicacy, as shown in the palaces of Italy, where it has been fashioned into pattern and diaper work of intricate design and great interest.

A revival of classic architecture occurred in the beginning of the 18th century, which required stone to carry out the necessary details of design. This revival created a great demand for material of even color and smooth surface, and many of the most monumental buildings in Europe of historical fame are the result, copied from the design and combination of brick and stone as shown in the Chateau Blois in Tourain, France, which was built some time in the 17th century.

Less important buildings at this period were built of brick, as a matter of economy, and plastered to imitate stone.

Then followed a revival of French Renaissance, which brought out designs combining brick and stone. The brick, however, were of smooth surface and of even color and size, which were only used as panels framed in stone.

For years we, in America, looked to England for the highest development in the art of designing and building in brick, because there we found the most carefully studied creations, most of which stand today as monuments of brick craft which still attract those who have an eye for the beautiful. These buildings will always interest the student of architecture as well as the layman from the fact of their being built with the same material on all four sides, producing an even appearance in texture. The best of the old brick buildings to be found today are principally in and around London, Oxford, Cambridge and scattered through the most unexpected parts of England.

These show that the method of laying brick was most elastic and of many designs. The object kept uppermost in mind was the effect of the "bond" in relation to design and construction, which fact has taught us many ways of laying brick, such as the Flemish, Dutch Cross, English Garden Wall bond, et cetera.

It must be born in mind that although the present style of brick laying was revived in Europe during the 19th century, it has been improved upon in this country during the last ten years, from the fact of our producing color effects and surfaces in brick that permit us to combine color, texture, and bond, which combination excells in beauty the best of the buildings we have been taught to look up to, as the most beautiful, constructed of burnt clay.

Observation leads me to believe that the best architectural effects produced in America will be those of the Old English feeling adapted to our surroundings and conditions and built of brick in its many interesting tints and shade, which reflect the art of brick making as developed three hundred years ago.

These colors and surfaces as they existed in centuries past are being reproduced by the skillful mixture of different clays and various methods of burning them, together with modern machinery for roughing the face.

Brick offers opportunities for design superior to other materials, not only through its ease in assembling colors but in the facility with which the joining may be used to accent the pattern designed.

The influence of the joint upon the color of the brick work can be understood when we note the fact that the mortar joint constitutes one-fifth to one-tenth of the surface of the finished wall.

Business blocks as well as homes, if built of brick, are superior to those constructed of any other material, not alone from the fact of being fireproof but from the effects permitted in design, particularly by using rough surfaced brick that maintain their colors even in the strongest sunlight.

The revival of pattern work is of importance in the use of rough brick, as it gives an opportunity to show the colors and texture in comparison with the smooth brick used to work out the pattern.

The whole of this paper is intended to show that the construction of the modern building of brick is based upon rejuvenated brick work with common sense principles as deducted from the experience of the early ages and in observation of the colors produced by nature.

I sincerely believe that the brick work we are producing today, will exert so strong an influence upon American architecture that eventually we will have better brick work than any the old world ever produced.

### Wednesday Afternoon.

The nominating committee was the first announcement of the president at the afternoon session. This was composed of the following:

The committee on nominations consisted of R. B. Combs, Chicago, Chairman; C. C. Barr, Streator, Ill.; F. Titterington, Rock Island; Dr. Converse, Springfield; S. T. Jacobs, Chicago.

Mr. Brent Wiley was then called on to read his paper on "A Talk on the Economy of Electricity for Power." This was much enjoyed and many interesting facts relative to the subject were gained.

E. S. Ketchum, director Interstate Department, La Salle Extension University, Chicago, followed: His subject was "How to Obtain Equitable and Impartial Freight Rates." This is a matter of vast importance to every clay manufacturer and was of decided benefit to all those who heard the matter discussed. This was followed by "The Development of Toughness in Claywares and the Effect of Acids on Slip for Enameled Brick," by Mr. Harrison Everett Ashley, Ceramic Chemist, Bureau of Standards, Pittsburg, Pa. This was illustrated.

W. P. Blair, Secretary of Paving Brick Association.

R. T. Stull, of Urbana, Ill., then read his interesting paper on the "Salt Glazing Process."

This was followed by an illustrated paper by Prof. Bleininger on "Notes on Heat Insulation." This was most pleasing and instructive,

Prof. Bleininger then read a very interesting paper on "Some German Results in the Improvement of Stoneware Bodies and Glazes." This paper will appear in a later issue of this publication.

A subject that was also of more than ordinary interest was that of R. T. Stull, of Urbana, Ill., entitled: "What Takes Place in a Die." This was illustrated with charts, and was most pleasing and interesting to all. The subject will be handled in an elaborate way in Brick and Clay Record in an early issue.

After the reading of the papers the remainder of the session was devoted to a lively discussion as to some practical ideas with regard to the operation of clay plants. This brought out points of vital interest. Another matter that came in for some consideration was the question of waste heat drying and the different systems. The results of these discussions were of great value to all.

This ended the afternoon session and an adjournment was taken until ten o'clock Thursday morning.

### Thursday Morning.

As stated heretofore, the Thursday morning session was devoted to the special excursion trip over the Rock Island road to plant No. 17 of the Illinois Brick Co. This is one of the biggest plants in Chicago and manufacturers over 300,000 brick every day of 8 hours. Through the adoption of the Penfield brick setting system 10 men are now enabled to do the work formerly requiring 24 employes and this system alone has enabled the Illinois Brick Co. to reduce the cost of this process of manufacturing from 60 cents to 20 cents per thousand.

There has always been more or less skepticism in the trade, regarding the practicability of setting brick by machinery but certainly no more convincing demonstration could be made of the success of the system than was shown at this plant of the Illinois Brick Co. and the big crowd of clay men who enjoyed this visit, all expressed their satisfaction and admitted that the system was a practical success.

The arrangements for this excursion were perfect and everything passed off like clock work. Ample accommodations were provided on the Rock Island Road, the special train stopping directly in front of the works so that there was no inconvenience to the visitors. While the association officers are greatly indebted to Mr. R. C. Penfield for obtaining permission for the visitors to see this plant, yet it must be understood that the special train and all arrangements were provided for by the association officers, who consider this excursion one of the important features of their program.

### Thursday Afternoon.

Some of the most important numbers on the program had been reserved for the last afternoon. These included a paper entitled "The Coal-Fired Continuous Kiln," by F. S. Naugle, of Bucyrus, O., and one entitled "A Talk on Producer Gas and Its Possibilities in Connection with the Continuous Kiln," delivered by Mr. Eb. Rogers, of Alton, Ill., who has had great success in the burning of paving brick in the Youngren kiln which he has at his plant at that place. These two papers brought forth an animated discussion in which a number participated and which proved very interesting and productive of practical ideas. Among others who participated was Mr. Vater of the C. W. Raymond Co., the engineer in charge of the Youngren kiln construction.

Frank Butterworth, Head of the Western Brick Co., Danville, Ill.

A most interesting paper, on the work of the Illinois Geological Survey in locating clay deposits, was read by F. W. DeWolf, director of the Illinois Geological Survey.

Another paper of great importance was that delivered by Mr. H. R. Straight of Adel, Ia., on different methods of clay mining. Mr. Straight has had vast experience in this branch of clay working operations and is well prepared to talk upon the subject. His paper, to be produced in a subsequent issue, will be of great value to our readers.

The paper on transmission was prepared by Mr. Wilbur Reese of the Sawyer Belting Co., Cleveland, O. Mr. Reese is in close touch with the clay industry and has full knowledge of the needs of clay products manufacturers in connection with their transmission equipment.

### Transmission.

The belting made by the company I represent has been marketed throughout the United States, Canada and Mexico, through dealers, jobbers and agencies. One of our chief aims now is to be closer to the consumer. Our experience is that his best interests can only be served in this way:

"All belt manufacturers want the consumer to feel at perfect liberty to bring his problems in power transmission to the attention of their engineering departments." Our regular stock folded belt is not put out as a cure-all, to meet every condition under which belting should be used; it is for general purposes only; and there is no plant in existence that can get the best results by using, exclusively, this grade of belt, for there are places where especially constructed belts should be used; and it is on this account that we wish to be in close touch with the consumer.

The most expensive belts in your plants are the conveying and elevating belts. It has been our pleasure and to the great satisfaction of our customers that we have eliminated the folded belts in these applications.

Perfect alignment in the conveying and elevating machinery of your plants is somewhat difficult to maintain, on account of the nature of your operations, and therein lies an additional factor in the destruction of belts. By this, I mean the irregular running of belts from side to side, and tearing to pieces by abrasions while running.

To overcome this, we have constructed piled belting, which as the name implies, is one layer of canvas laid on top of another, until the proper plies are reached, and extra stitching on the edges. This belt will then lend itself to the irregular alignment, and run true; and when it does rub itself against any guides, or when the belt, by the action of the material dropping upon it, is thrown over to one side, it has a cushion with sufficient resiliency to make the contact harmless and non-abrasive.

In this connection, I wish to draw attention to the value of studying the speed of loading, in relation to the speed of belt travel. The closer these speeds conform to each other, the less friction will be caused by the material conveyed by the belt, thus adding largely to the life of the belt.

There are other destructive factors contained in the material you handle, but cannot change. And it has been our particular pleasure, after years of endeavor, to meet these conditions; and can say to you positively that there is a belt which will resist the oils, and the water, and the dust and other elements that combine to destroy belts. This impervious belt has proven to users its reliability and value.

Should there be any among you who have not tried the value of placing on your elevating belts, a piece of belt of corresponding plies, and of the size of the bucket, we feel that you have lost something. It prevents material getting between the bucket and the belt, and grinding or cutting it out, and it gives an increased gearing surface on the bolts which hold the bucket in place.

Is your belting cost so much per year, classed as a necessary evil, a source of annoyance and expense, making inroads into profits, and making this item of expense difficult to determine in figuring out cost of production; or does it enter into your itemized daily expense account? As, for instance: A conveying or elevating belt is costing so much per thousand bricks or tons of material, and the cost of that belt should be charged off according to the number of bricks or tons of material it is conveying. Proportionate cost of the belt is part of the cost of production, and if charged off properly, the belt when ready to go to the scrap pile, has been paid for by the consumer of your material; and in this way, belting expense becomes a known factor, rather than a quantity to be estimated at the end of the year, and charged off against your profits.

Has it ever occurred to you that it was possible to have an eight-ply belt at the cost of a four-ply? Has any manufacturer, outside the Sawyer Belting Co., ever suggested this to you, or intimated a partial if not entire elimination of your scrap pile? This, gentlemen, can be done, and is done; and the Sawyer Belting Co. is willing to continue doing, if you will take them into your confidence, and allow them to prove to you that they have the consumers' interest at heart.

Let us see how much detail there is in the manufacture of a belt. We start with:

The character of the fiber that is to be used in the weaving of the canvas, the warp and the binder; their proportionate number to each other; the tension of the weave; the character of the cotton which is used in the thread for stitching; then there comes the folding of the belt, and the stitching; next comes the character of the oils and their compounds that are used in the treatment; the necessary neutralizing of the natural acids that are contained in these oils; the stretching and calendering of the belt; the methods of making the belts pliable, and attention to its traction qualities, and the chemical processes through which it has to go, and the oxidization which has to be watched, before you can have an efficient belt.

If a belt is constructed for the work it is going to do, failure is then due to the following causes:

Improper method of putting on the belt; improper fastening of the belt; improper tension on the belt, and improper treatment of the belt.

These items are vital to the life of a belt. If a belt is not constructed especially for its work, then we have the additional causes for failure:

Slipping, unproportioned belt, ripping of stitches and self-contained factors, which start up a self-destruction.

There are times when a belt needs dressing, but not as often as some think; and the indiscriminate and promiscuous use of oils and compounds has done considerable damage, not only to your pockets, but to the reputation of many a good manufacturer, who has had his goods damned on account of this practice; whereas the supply of oil and rosin should have been damned at their source.

It has been my pleasure to attend conventions in yours and kindred lines where papers have been read and discussed touching upon associations, and in every case it has been stated that the associations are for purification of business and business methods, and for the elimination of illegitimate competition.

There is, in the belting line, an association for this very purpose, and not for the intention of manipulating prices. For I can sight cases where belts outside of the association have been and are put on the market with no higher claims than a higher price named by the association members.

Again, prices should not affect you in the matter of selecting a belt for your use, because the price can be influenced, aside from the material which goes into it; and that influence is the method of conducting business. It has always been the aim of the Sawyer Belting Co. to conduct its business without an appreciable selling expense, to the end that the consumer may have the benefit of the money it does not spend on a force of travelers.

We are not criticising the methods or the knowledge of master mechanic or purchasing agent; we are grateful for their business; but we are interested, to the extent of taking time and presenting the best we have to offer for the conditions to be met. And it is eminently unjust to the earnest and conscientious salesman, not to allow him to take the points he wants to into consideration, in filling your order. Because a belt in a certain place has given you what has seemed satisfactory service, it is no indication that you are getting the best results, as far as efficiency and durability are concerned. The danger in this class of work is one of perpetuating errors. In this respect, I must draw attention to the fact that before a man can order a belt, even for ordinary purposes, and order it intelligently, he must be conversant with the relationship between speeds, horsepowers and dimensions of pulleys.

I would further say it is impossible to get two belts exactly the same grade, and doing exactly the same work, side by side, to produce exactly the same results. This, on account of the human equation, which is, in a vast number of plants, unintelligent, careless and indifferent in their treatment of belts.

While you have been engaged in doing big things, and your mind has been consequently occupied with bigger things, the cost of your power has probably presented itself to you in a manner expressive enough; but on account of so many larger things to attend to, this item has not received its share of attention.

Let me state right here, there is a nice proportion of profits wasted in power transmission. I will cite an illustration where a superintendent requested an examination of his power transmission, as he was not satisfied that the best results were being obtained. The investigation showed the superintendent as being correct. Figures were placed before the president who quickly reduced them to dollars and cents. They were very pertinent figures. The president thought a moment and said: "Well, there is a great loss, but power does not cost me anything." He was met with the question: "You pay something for fuel?" Yes, he said, but only $1.20 delivered. That did not worry the salesman, for he made the president this proposition: "I want you to take a carload of hard coal at $8.00 per ton, and whoever is wrong will pay for it." The coal came along, and after a number of experiments and tests, it was shown conclusively, on tabulation of figures, reduced to dollars and cents, that the man could use this $8.00 coal with improved power transmission methods, in preference to the $1.20 coal, and be on the right side of the ledger.

This surely must set every power consumer thinking; and I want to say in this connection that there are more plants in operation where thirty to thirty-five per cent of power can be saved than there are plants operating under ideal conditions.

The stitched canvas belt is the belt of today. Rubber, leather and their class are being superseded, but for rough, rugged, hard work, canvas is king and kings are allowed in parlor engine rooms.

There is one item that I have overlooked, and I assure you, gentlemen, it is as much for your benefit as that of the manufacturer, that you anticipate your wants, and get away from the practice of wanting a belt the day before it is ordered.

I have consumed more than the time allowed me; but I am so enthusiastic in this belting proposition that it has been hard work for me to reduce what I wanted to say to this minimum; but multum in parvo has been so much impressed upon me that I can only leave this matter in its bare outline, and trust that I may have the opportunity of taking up with you individually at far greater length, details which I have, of necessity, left alone.

### The Business Organization.

The convention then proceeded to the annual election of officers and the names submitted by the nominating committee were elected unanimously, as follows: W. D. Gates, President; F. R. Carter, Vice-President; Geo. R. Hartwell, Secretary; J. M. Mamer, Treasurer.

Following is the report of the committee on resolutions unanimously adopted by the convention.

### Resolutions.

1. RESOLVED, That we recommend the efforts of the Illinois Clay Workers Association in bringing together the large number of representative clay workers from this and other states in this middle states convention.

2. RESOLVED, That we recommend that steps be taken to co-operate with the Chicago Real Estate Board or the Builders Exchange to arrange a permanent clay products exhibition, where manufacturers and dealers can have on display their products at all times; and if in time it would be deemed advisable to hold an annual exhibition, this could be considered as the first step towards such a project.

3. RESOLVED, That the most hearty thanks to the association be extended to the Glad Hand Committee for the magnificent entertainment afforded at this convention and the generous hospitality offered to delegates and visitors.

4. RESOLVED, That it is the sense of this meeting that the Ceramics Department of the University of Illinois is doing splendid work for the higher interests of the clay and allied industries and that it deserves the hearty support of this association.

5. FURTHERMORE, This organization urges upon the legislature of the state of Illinois, the adequate support of this department in providing the means necessary for the increased equipment urgently needed in broadening the helpful influence of this work. It is recommended that each member of this organization make every effort to put before his representative and senator the importance and needs of the Ceramics Department and urge upon them that the sum of $75,000.00 be appropriated to the University of Illinois for this purpose.

6. RESOLVED, That inasmuch as the Loard in His all wise providence has taken from us our esteemed member, L. H. Martin, that we offer our sincere sympathy to his family, and that this resolution be spread upon the minutes of this association and a copy sent to his family.

7. RESOLVED, That we extend to the officers of this association our thanks for their untiring efforts in arranging this the largest convention in our history.

G. C. Stoll,
J. W. Robb,
C. W. Lansing.

### The Clay Products Show.

As previously stated, the convention wound up its proceedings in splendid style with important and definite action in setting the ball rolling for a National Clay Products Exposition and the matter brought forth animated discussion. A committee was finally appointed consisting of W. P. Blair, secretary of the National Paving Brick Manufacturers' Association, Mr. R. C. Penfield and E. Vognild. This committee received its instructions from the convention and prepared the following resolution, which was unanimously adopted: "Resolved, That the president of this association and the executive board shall appoint a committee of five who shall have in charge the promotion and the establishment of a clay products exposition to be held annually in the city of Chicago; the first of these to be held as early as possible in the year 1912. This committee is directed to co-operate with and enlist the support of the various state and national associations of clay products manufacturers and shall have the power to extend its membership and to provide ways and means by which such an annual exposition may be established. The committee shall act independently and will in no way involve this association in any financial responsibility for the undertaking."

### The Ladies' Reception Committee.

Much credit is due to Mrs. Geo. H. Hartwell, wife of the worthy secretary, for her untiring efforts as chairman of the ladies' reception committee in arranging for and carrying out the program and special entertainment provided for the visiting ladies. This was a very enjoyable feature of the convention and it is safe to say that not one of the visiting ladies will fail to say that this convention was the pleasantest that they have ever attended. The program for the ladies began with a shopping expedition through Marshall Field & Co.'s large store, on Tuesday evening a theater party to see "Polly of the Circus" at McVicker's Theater, Wednesday morning they visited the famous Art Institute and several other of the leading public buildings, some of the ladies also going to the Lincoln Park Zoological Gardens; on Wednesday evening the ladies participated at the big banquet at the Auditorium Hotel and on Thursday noon they enjoyed a delightful lunch at Marshall Field's, followed by a matinee at the Whitney to see the charming play, "The Little

Dr. A. L. Converse, of Springfield, Ill., a Veteran Member Welcomed at the Convention.

Damozel." Following is a list of the visiting ladies present at the convention:

### Roster of Ladies Present

Mrs George H. Hartwell, Chicago, Ill.
Mrs. D. F. Stevens, Cayuga, Ind.
Mrs. J. C. Stoll, Bucyrus, O.
Mrs. F. J. Langstaff.
Miss F. Schultz, Chicago, Ill.
Mrs. M. L. Mamen, Campus, Ill.
Mrs. E. K. Cormack, Chicago, Ill.
Mrs. F. J. M. Silha, Chicago, Ill.
Mrs. J. Harsig, Warren, Mich.
Mrs. J. C. Boss, Elkhart, Ind.
Mrs. B. C. Morrison, Brooklyn, Ind.
Mrs. W. L. Lock.
Mrs. S. T. Jacobs, Chicago, Ill.
Mrs. A. T. Leach, Chicago.
Mrs. Julius Nichols, Columbus, Neb.
Mrs. S. M. McHose. Nevada, Ia.
Mrs. N. G. Stroup.
Mrs. A. E. Hetzner.
Mrs. H. W. Spalding, Chicago, Ill.
Miss V. M. Trasher, Monon, Ind.
Miss E. M. Stroup.
Mrs. A. L. Schultz, Chicago, Ill.
Mrs. F. A. Hoiles.
Miss M. C. Suhrheinrich, Evansville, Ind.
Mrs. C. C. Miller.
Mrs. H. Bredenkamp, Evansville, Ind.
Mrs. B. G. Carter, Peoria, Ill.
Mrs. F. R. Carter, Peoria, Ill.
Mrs. F. A. James.
Mrs. H. R. Straight, Adel, Ia.
Mrs. C. J. Peterson, Chicago, Ill.

### The Exhibit Committee.

The following committee had full charge of the arrangements of exhibits and provided for the needs of the various machinery and equipment representatives: E. R. Frazier, chairman, Chambers Bros. Co., 524 W. Jackson Blvd.; H. Tanner, Chicago Retort & Fire Brick Co., 115 Adams St.; Roger Coombs, 1201 Chamber of Commerce; E. A. Allen, Ohio Ceramic Engineering Co., 164 Dearborn St.; O. T. Christensen, Orenstein-Arthur Koppel Co., 98 Jackson Blvd.; Mr. Cullen, Main Belting Co., Chicago; John Moroney, Chicago Brick & Machinery Co., Great Northern Bldg.

### The Glad Hand Committee.

The success of the convention is largely due to the efforts of the local committees. The glad hand committee consisted of all contributors to the local fund and their work in behalf of the association consisted of more than the mere providing of funds, for they showed great enthusiasm regarding the arrangements and did loyal duty throughout the convention. The glad hand committee was as follows:—

American Clay Machinery Co., Wm. E. Dee Clay Mfg. Co., American Terra Cotta & Ceramic Co., D. C. Haeger, American Fabric Belting Co., Geo. H. Hartwell, Anderson Foundry & Mach. Works, Illinois Brick Co., Bach Brick Co., Main Belting Co., Barron Dryer Co., Manteno Brick & Tile Co., Brick and Clay Record, Marion Steam Shovel Co., Calumet Brick Co., W. H. M'Carthy, Chambers Brothers Co., M'Laughlin Building Material Co., Chicago Brick Co., National Brick Co., Chicago Brick Machinery Co., National Fire Proofing Co., Chicago Face Brick Association, Ohio Ceramic Eng. Co., Chicago Fire Brick Co., Orenstein-Arthur Koppel Co., Chicago Retort & Fire Brick Co., L. E. Rodgers Engineering Co.; Chisholm, Boyd & White Co., A. L. Schultz & Son, The Clay Product Co., Taylor Instrument Co., The Alonzo Curtis Brick Co., Weller Mfg. Co., Westinghouse Elec. & Mfg. Co.

### The Banquet.

The special entertainment feature provided by the glad-hand committee for the visiting delegates was the banquet. Owing to the large number of visitors, this part of the program was given at the Auditorium Hotel, in the large banquet hall.

An elegant menu had been arranged. The delegates, local committee, ladies and invited guests assembled in the parlor of the Auditorium at 6 o'clock. An hour later they adjourned to the banquet hall on the ninth floor. Flowers and music had been provided, and the menu was all that could be desired and of unusual excellence for a function of this character.

Pleasing features of the banquet music were the flute and cornet solos by Elmer L. Brown, son of Davis Brown of the Brewer Co., and by Claire Camburn, of Tecumseh, Mich.

### Menu

Blue Point Cocktail
Celery Olives Salted Almonds
Strained Chicken Gumbo
Planked Whitefish, Hotelier
Sweetbreads a la Bechemel
Creme de Menthe Punch
Squab Roti, Sur Canape
Combination Salad
Biscuit Tortoni Assorted Cakes
Roquefort Cafe Noir
Cigars

Between the courses popular airs were sung by those present, perhaps as an aid to a greater appetite, which seemed indeed unnecessary. The list of speakers included many well known to the clay industry, and their talks were full of wit and at the same time rang with sentiments of gratitude for the entertainment committee and the industry that they represented.

It was conceded by every one in attendance that the affair was most delightful and one not soon to be forgotten.

### Among the Live Wires.

The machinery and equipment interests were represented at the convention in a most gratifying manner and the presence of these men who have done so much and are doing so much toward the advancement and development of the clay industry was of substantial assistance in making the convention a success. Practically all of the machinery and equipment firms in this field were on hand, most of them with the senior members or leading officers of the company at the head of their delegations.

Parlor "J" was the headquarters for the American Clay Machinery Co., of Bucyrus, O. and Willoughby, O. In addition to the leading members of the company, Messrs. R. C. Penfield and L. W. Penfield, there were on duty. Mr. C. B. Sharer, sales manager, Mr. F. L. Hopley, publicity manager, Messrs. P. L. & H. S. Simpson of the Chicago office and Messrs. S. J. Heafield and G. C. Stoll.

The American Clay Machinery Co. had no special exhibit but had their headquarters as a popular meeting place.

For the first time in many years Mr. Chas. W. Raymond, head of the C. W. Raymond Co., Dayton, O., was in attendance at a clay convention and he was greeted by his old friends in the industry with much pleasure. The Raymond Co. made their headquarters in parlor "C." In addition to Mr. Raymond, the company was represented by C. W. Raymond Jr., G. W. Nutshaw, G. C. F. Vater, J. P. Williams and A. F. Greaves Walker. The

Raymond headquarters presented many interesting features, including the complete model of the famous Youngren Kiln and some small machinery models of considerable importance.

The J. D. Fate Co. were represented by the three strongest men of their concern, Mr. Harley H. Fate, the president, one of the most popular men in the field and whose avoirdupois does not seem to interfere with his activity; Mr. Geo. B. Drennan, secretary and treasurer and H. J. Votaw, the veteran salesman. The Fate Co.'s headquarters were under the hats of these different gentlemen and they were certainly "on the job." It is said that Mr. Fate made the hit of the convention during the banquet.

The well known clay machinery firm of E. M. Freese & Co., Galion, O., was represented at the convention by A. J. Freese, who appears to be a "chip off the old block," and by Mr. E. L. Hess, who has heretofore had charge of the St. Louis office but who now appears to be making his territory the entire U. S. These two gentlemen fittingly represented the Freese line of machinery and were evidently popular with the clay men.

At the Middle West Convention a rather unusual feature was the prominence of the belting interests, particularly the strong representation made by the Sawyer Belting Co. of Cleveland. Sawyer Belting has been popular in the clay industry for years but is gaining more and more prominence through the commendable efforts of the company to get into closer touch with the industry and in the successful way in which they have been able to meet all the special requirements of clay working plants. This company were very prominent at the convention and had a splendid exhibit in the exhibit rooms, including an 800 lb. roll of belting and also had two parlors for headquarters on the convention floor of the Palmer House; and it is reported that they took a large number of special orders for belting during the sessions. Mr. H. L. Taite, sales manager of the company headed the delegation and was amply backed by Wilbur Reese and E. F. Deckert.

One of the strong clay machinery concerns in the field is the Bonnot Co., Dayton, O., and this concern was ably represented by the manager A. A. Oldham, and its popular salesman, A. W. Aylesworth.

A new man showed up in the soft-mud field: C. L. Rorick who is now prominently identified with the Arnold-Creager Co., New London, O. This company, with headquarters in Parlor P, had some interesting exhibits of molds and other equipment. They report a very satisfactory business. The company is now represented on the road by Frank McClellan, who was in attendance at the convention. Mr. Rorick is a man of great energy and enterprise, and will doubtless make the Arnold-Creager line stronger than ever before.

The name Simpson has been identified prominently with the clay industry for many years, and Wm. Simpson, sales manager for the Frost Mfg. Co. is a prominent man in the field. The Frost line of dry pans, engines and boilers are well-known and the company was ably represented at the convention by Mr. Simpson.

The Chicago Retort & Fire Brick Co., of which Chas. S. Reed is head, has occupied a very prominent place in the clay industry of the middle west, and is supplying an immense amount of fire brick for use in kiln construction. The company was represented at the convention by Geo. J. Dietrich and H. Tanner.

No firm in the industry is better known than that of C. & A. Potts & Co., Indianapolis, Ind.; and Mr. Al. Potts was on hand as usual to greet his friends and represent the interests of his company. Mr. Potts reports that his company did the best business of their history during the year 1910, and looks forward to 1911 being even better.

E. R. Frazier represented Chambers Bros. Co., Philadelphia, Pa., and Chicago. He is one of the boys whose smile is convincing, and a number of photos of their brick machines were evidence.

The Ohio Ceramic Engineering Co., Cleveland, O., were present in room 220 with a nice exhibit, and E. A. Allen and D. L. Wadsworth looked after the wants of the visitors looking for brick cars.

Westinghouse E. & M. Co., East Pittsburg, Pa., had photos illustrating electric power in clay plants. Several representatives were present at the convention.

The Taylor Instrument Co., Rochester, N. Y., was represented by H. Pagenstichei and A. R. Lemke, with furnace and heat-testing apparatus.

The Atlas Car & Mfg. Co., Cleveland, O., had an exhibit, which was under the direction of S. W. Wright.

H. Brewer & Co., Tecumseh, Mich., had photos of clay machinery. Davis Brown, G. D. Brubaker, Elmer I. Brown and Claire Cambrun were the active representatives.

Tate, Jones & Co., Pittsburg, Pa., were on hand, with Geo. Tate and G. E. Luce exploiting the oil burner of this concern.

The Henry Martin Brick Machine Mfg. Co., Lancaster, Pa., were among those present, C. H. Horton being the active representative.

John J. Moroney, of the Chicago Brick Machinery Co., Chicago, was everywhere in evidence.

The Chicago Mine & Supply Co., Chicago, had an able representative in the person of H. W. Spalding.

Orenstein-Arthur Koppel Co., Chicago, had sample cars and track on view. O. T. Christerson and C. F. Rabbett were the men on hand to represent them.

The Buckeye Traction Ditcher Co., Findlay, O., were not missed. A. C. Heck was looking after the company's interests.

Richard G. Hoffman was demonstrating his new machine, as advertised in Brick.

The Thew Automatic Shovel Co., Lorain, O., were exhibitors. D. D. Deeds was the man behind the shovel.

The Beaver Belting Co., Chicago, had a nice line of samples to "show."

The Barron Dryer Co., Chicago, was in room 18. Mr. A. E. Barron was there to prove the merit of the company's product.

The Main Belting Co., Chicago, with E. M. George in charge, was on tap.

The Marion Steam Shovel Co., Marion, O., had a number of nice views, which were shown by F. H. King.

The Matthews Gravity Carrier Co., St. Paul, Minn., had a fine display in room 18. Mr. C. E. Achuff was the local man.

The Chase Foundry and Machine Co., Columbus, O., did not fail to be on hand, with S. M. Chase and A. J. Dunn to do the talking.

The Ohio Clay Co., Cleveland, O., had a nice exhibit of interlocking block. G. W. and W. C. Denison were demonstrating their good points.

The Manufacturers' Equipment Co., Dayton, O., were represented by W. H. Sachs.

The Frost Manufacturing Co., with main office and works at Galesburg, Ill., had a nice exhibit at the convention, in charge of Mr. Simpson. This company manufactures a line of dry pans, wet pans, engines, boilers, open and closed heaters, and feed water purifiers. It seems scarcely worth while to mention any details about their line, as it is so well known to the clay-working industry. The company maintains a large office in Chicago.

The Weller Mfg. Co had an oil burner on display, and Mr. C. J. Peterson was the man to make them "take notice."

The Brazil Machine and Foundry Co., Brazil, Ind., manufacturers of clay-working machinery, came in on the last day. Mr. E. A. Baker, secretary and treasurer of the company, was the man who came to prove how good it was to get lined up with them.

The Manufacturers' Equipment Co., of Dayton, O., who are the latest addition to the ranks of those who will cater to the wants of the clay works, have just completed arrangements to handle the complete line of the J. D. Fate Co. of Plymouth, O.

Harry L. Taite, Sales Manager Sawyer Belting Co.

W. R. Cunningham, mechanical manager of the American Clay Machinery Co., Bucyrus, O., was a visitor at the convention. He was in demand on account of his store of knowledge pertaining to the clay machinery lines. Mr. Cunningham was a charter member of the National Brick Manufacturers' Association, organized in 1886, and was the organizer of the National Machinery Manufacturers' Association, in 1890. Previous to his connection with the above named company, which covers a period of eleven years, he was connected with the Wallace Manufacturing Co. He was president of the Machinery Manufacturers' Association for ten years. He is one of the old timers in the business, and has made a special study of automatic cutters and laminations.

H. B. Sackett Screen and Chute Co., Chicago, Ill., manufacturers of a line of screens, cars, elevators, buckets and kindred lines of equipment for the clay working industry, are giving considerable time and attention to this branch of their business now. Their well known line of "Sackett Chicago" equipment has been finding favor with brick and burned clay manufacturers. This company is demonstrating its ability to the satisfaction of users of such equipment. The special features of this company is their dump and dryer cars. Clay manufacturers who want a car for either purpose, would do well to inspect their "Sackett Chicago" line. A catalogue will be mailed to any part of the country, which tells the story of their achievements, with plenty of illustrations.

## CONVENTION SOUVENIRS.

The exhibitors outdid themselves in giving out handsome and useful souvenirs to visitors. We were unable to secure samples of all, but will make mention of a few which we noticed.

G. B. Mentz, Walkill, N. Y., "struck the right spot" when he remembered his friends with a handsome pocket knife.

The American Clay Machinery Co., Bucyrus, O., gave out a variety of useful articles, including a handsome steel paper knife and leather bound memorandum book; the ever popular box of cigars was also in evidence.

The Main Belting Co., Chicago, Ill., gave vest pocket notebooks with handsome leather binding.

A unique aluminum ruler will serve as a reminder that the H. B. Sackett Co. are to be found at 1685 Elston Ave., Chicago.

The Weller Manufacturing Co., Chicago, also gave handsome two-blade knives with the company's name in raised letters on the side.

The J. D. Fate Co. gave useful document pocket books; the Davenport Locomotive Wks. pencils with adjustable leads.

## GETTING MANY NEW ORDERS.

The Williams Patent Crusher & Pulverizer Co., St. Louis, Mo., are feeling jubilant over the results of their season's business. Some of their more recent orders were from the Puritan Brick Co., Hamden Junction, O.; Gehrlach Brick & Tile Co., Wapakoneta, O.; Trumbull Brick Co., Youngstown, O.; Ringle Brick Co., Wausau, Wis.; Hamilton-Clay Product Co., Hamilton, Ill.; Gise & Diehl Brick Co., York, Pa.; Mason City Brick & Tile Co., Mason City, Ia.; Carquinez Brick Co., Port Costa, Cal.

## CHANGES IN THE STEPHENSON-ADAMSON CO.

The Stephens-Adamson Mfg. Co., of Aurora, Ill., has recently strengthened their organization by securing the services of Mr. G. H. Stephens. Mr. Stephens has obtained substantial interests in this company, and will assume at once the management of their entire eastern business. The eastern office is located at 50 Church Street, New York City. Mr. Stephens has been a prominent factor in the conveying industry for over twenty years and has a comprehensive knowledge of conveying and screening machinery and a wide acquaintance among the machinery users of the East.

The Engineering Department of the Stephens-Adamson Mfg. Co.'s New York office is under the charge of Mr. J. G. Marcrum. Mr. Marcrum is recognized as a conveying engineer of unusual ability.

Mr. Earl D. Stearns, who has ably represented the Stephens-Adamson Co. in the East for the past two years, will henceforth take charge of the company's Chicago office in the First National Bank building.

The Stephens-Adamson Mfg. Co. are direct manufacturers of a complete line of conveying, elevating, screening and power transmitting machinery. Their main office and shops are located at Aurora, Ill., on the main line of the Burlington. These shops are thoroughly modern in every respect, and are prepared to design and manufacture a high grade of machinery in the least time and in the most efficient manner. Their new steel shop, which has just been completed, is one of the largest and most finely equipped for this purpose in the country.

# Roster of the Middle West Convention

1. D. C. Haeger, Aurora, Ills.
2. Geo. H. Hartwell, Chicago, Ills.
3. C. W. Lansing, "Brick and Clay Record," Chicago, Ills.
4. A. E. Huckins, Sheldon Brick Co., Champaign, Ills.
5. A. Fischer, with Chicago Brick Co., Chicago, Ills.
6. H. S. Simpson, American Clay Mchy. Co., Chicago, Ills.
7. Wm. Simpson, Frost Mfg. Co., Galesburg, Ills.
8. E. A. Allen, Ohio Ceramic Eng. Co., Cleveland, O.
9. S. T. Jacobs, Chicago Brick Co., Chicago, Ills.
10. C. W. Raymond, C. W. Raymond Co., Dayton, O.
11. C. W. Raymond, Jr., C. W. Raymond Co., Dayton, O.
12. G. W. Nushaw, C. W. Raymond Co., Dayton, O
13. E. R. Frazier, Chambers Bros. Co., Philadelphia, Pa.
14. Brent Wiley, Westinghouse E. & M. Co., Pittsburg.
15. W. Barnes, Jr., Westinghouse Co., Pittsburg.
16. W. A. Louden, Fairfield Brick & Tile Co., Fairfield, Ia.
17. A. Potts, C. & A. Potts & Co., Indianapolis, Ind.
18. H. Pagenstecher, Taylor Instrument Co., Rochester,
19. A. R. Lemke, Taylor Instrument Co., Rochester, N. Y.
20. H. Tanner, Chicago Retort & Fire Brick Co., Chicago,
21. H. L. Taite, Sawyer Belting Co., Cleveland, O.
22. E. F. Deckert, Sawyer Belting Co., Cleveland, O.
23. W. Reece, Sawyer Belting Co., Cleveland, O.
24. A. W. Aylesworth, Bonnot Co., Canton, O.
25. Fred Talbot, Laclede-Christy Clay Products Co., St. Louis, Mo.
26. S. W. Wright, Atlas Car & Mfg. Co., Cleveland, O.
27. Gustav Voelcker, Deary Clay Products Co., Idaho.
28. F. L. Hopley, American Clay Mchy. Co., Bucyrus, O.
29. C. B. Sherer, American Clay Mchy. Co., Bucyrus, O.
30. M. J. Sprang, Sprang Clay Products Co., Ft. Wayne, Ind.
31. Davis Brown, H. Brewer & Co., Tecumseh, Mich.
32. J. G. Mamer, Benton Harbor Brick & Tile Co., Benton Harbor, Mich.
33. A. L. Solfisburg, Solfisburg Sons Co., Aurora, Ills.
34. E. O. Biglow, The E. Biglow Co., New London, O.
35. C. D. Peet, North Star, Mich.
36. J. Leo Child, Hancock Brick & Tile Co., Findlay, O.
37. G. E. Luce, Tate, Jones & Co., Pittsburg, Pa.
38. Geo. Tate, Tate, Jones & Co., Pittsburg, Pa.
39. C. H. Horton, Henry Martin Brick Machine Mfg. Co., Lancaster, Pa.
40. T. S. Rouce, Brazil Clay Co., Brazil, Ind.
41. Frank L. Thomas, Marshall Co. B. & T. Wks., Plymouth, Ind.
42. John C. Boss, John C. Boss Co., Elkhart, Ind.
43. D. L. Wadsworth, Ohio Ceramic Eng. Co., Cleveland, O.
44. John J. Moroney, Chicago Brick Mchy. Co., Chicago,
45. G. H. Tompkins, H. N. Elmer Co., Chicago, Ills.
46. E. L. Hess, E. M. Freese & Co., Galion, O.
47. S. J. Heafield, Am. Clay Mchy. Co., Bucyrus, O.
48. J. M. Powell, Indiana Drain Tile Co., Brooklyn, Ind.
49. Chas. H. Carpenter, Suburban Brick Co., Wheeling, W. Va.
50. W. H. Sachs, Mfrs. Equipment Co., Dayton, O.
51. J. B. Ford, Gen'l Contractor, J. B. Ford Lumber Co., Harrisburg, Ill.
52. F. A. Smith, A. F. Smith Co., New Brighton, Pa.
53. L. D. Grimes, A. F. Smith Co., New Brighton, Pa.
54. G. W. Denison, Ohio Clay Co., Cleveland, O.
55. W. C. Denison, Ohio Clay Co., Cleveland, O.
56. R. S. Root, Acme P. B. Co., Fort Worth, Tex.
57. H. W. Spalding, Chicago Mine Brick Sup. Co., 44 Mich. Ave., Chicago, Ill.
58. Chas. Ambrose, Am. Fabric Belting Co., Cleveland, O.
59. Harold S. Wheeler, Far West Clay Co., Tacoma, Wash.
60. J. S. Nichols, Columbus Brick Works, Columbus, Neb.
61. J. Voelker, Voelker & Groff, Winona, Minn.
62. H. T. McLaughlin, Alsey Brick & Tile Co., Alsey, Ills.
63. O. Tfl Christenson, Orenstein-Arthur-Koppel Co.
64. C. F. Robbett, Orenstein-Arthur Koppel Co., Chicago,
65. J. H. Coley, Davenport Loco. Co., Davenport, Ia.
66. A. C. Heck, Buckeye Tract. Ditcher Co., Findlay, O.
67. S. M. McHose, S. M. McHose, Nevada, Ia.
68. H. B. McMillan, Western Stoneware Co., Monmouth,
69. H. Bredenkamp, 1st Ave. Brick & Tile Co., Evansville, Ind.
70. Wm. Suhrheinrich, Standard Brick Mfg. Co., Evansville, Ind.
71. P. H. Tiernan, Macomb, Ills.
72. F. W. Stuart, Shackelford Brick Co., Des Moines, Ia.
73. Geo. Yarn, Shackelford Brick Co., Des Moines, Ia.
74. Harvey Kidder, Ionia Pottery Co., Ionia, Mich.
75. Henry Witzel, Ionia Pottery Co., Ionia, Mich.
76. Jacob Hartsig, Warren, Mich.
77. Frank B. Calmeyn, Chicago Brick Mchy. Co., Chicago, Ills.
78. J. M. Mamer, Mamer Bros., Campus, Ills.
79. W. W. Anspach, J. P. Anspach & Son, Edgerton, Ind.
80. F. W. Grice, Broderick & Bascom Rope Co., St. Louis,
81. H. M. Kimbell, Meacham & Wright Co., Chicago, Ills.
82. F. R. Watson, Meacham & Wright Co., Chicago, Ills.
83. J. D. Blount, Meacham & Wright Co., Chicago, Ills.
84. Jas. J. Lyons, Meacham & Wright Co., Chicago, Ills.
85. E. C. Kimbell, Meacham & Wright Co., Chicago, Ills.
86. G. B. Luckett, Crawfordsville Shale Brick Co., Crawfordsville, Ind.
87. Wm. Hammerschmidt, L. B. & T. Co., Lombard, Ill.
88. Alfred Hammerschmidt, Lombard B. & T. Co., Lombard, Ills.
89. J. W. Wild, Gilman, Ills.
90. Geo. Gleckler, Elmore, O.

91-93. Wisconsin Lime & Cement Co., Chicago, Ill.  
94-96. Bonner & Marshall Co., Chicago, Ill.  
97-99. Thos. Moulding Co., Chicago, Ill.  
100. S. S. Kimbell Co., Chicago, Ills.  
101. Judge J. L. Stevens, Boone Brick, Tile & Paving Co., Boone, Ia.  
102-103. S. S. Kimbell Co., Chicago, Ill.  
104-106. Jenkins & Reynolds Co., Chicago, Ill.  
107. Jno. T. Hummert, Gem City P. B. Co., Quincy, Ills.  
108. Richard G. Hoffmann, Chicago, Ills.  
109. Thew Automatic Shovel Co., Lorain, O.  
110. Fred Freese, Jr., Janesville Red Brick Co., Wis.  
111. Fred Freese, Sr., Monroe, Wis.  
112. V. C. Morrison, Ind. Drain Tile Co., Brooklyn, Ind.  
113. Geo. I. Dietrich, Chicago Retort & F. B. Co., Ill.  
114. G. C. F. Vater, C. W. Raymond Co., Dayton, O.  
115. J. P. Williams, C. W. Raymond Co., Dayton, O.  
116-118. Chicago Hydraulic P. B. Co., Chicago, Ill.  
119. Jno. Benedict, Davenport, Ia.  
120. J. M. Hoskins, Terre Haute Vitrified Brick Co., Terre Haute, Ind.  
121. L. H. Lambert, Beaverville Brick & Tile Co., Beaverville, Ills.  
122. C. W. Drake, Westinghouse Elec. Co., Pittsburgh.  
123. Eben Rodgers, Alton Brick Co., Alton, Ills.  
124. G. C. Stoll, Am. Clay Mchy. Co., Bucyrus, O.  
125. Fred Baum, Sweetser Drain Tile Co., Sweetser, Ind.  
126. Alva Williamson, Williamson Bros., Sweetser, Ind.  
127. Frederick E. Bausch, St. Louis, Mo.  
128. F. W. DeWolf, State Geological Survey, Urbana, Ills.  
129. L. C. Thrasher, L. C. Thrasher & Co., Monon, Ind.  
130. C. J. Peterson, Weller Mfg. Co., Chicago, Ills.  
131. H. R. Ireland, Hydraulic P. B. Co., Brazil, Ind.

132. A. F. Greaves Walker, C. W. Raymond Co., Dayton, O.
133. S. R. Ellis, West Canton Paving Brick Co., Canton, Ills.
134. E. W. Wood, Hamilton Clay Mfg. Co., Hamilton, Ills.
135. Geo. B. Roller, Canton, Ills.
136. Jno. M. Heckard, M. Heckard & Son, Canton, Ills.
137. Beaver Belting Co., Chicago, Ills.
138. Anderson Fdry. & Mach. Works, Anderson, Ind.
139. F. R. Carter, Peoria, Ills.
140. Benj. G. Carter, Peoria, Ill.
141. D. D. Deeds, Thew Aut. Shovel Co., Lorain, O.
142. R. T. Stull, Urbana, Ills.
143. Harrison Everett Ashley, Clay Product Lab., Pittsburgh, Pa.
144. Chas. McHose, Maxwell, Ia.
145. Jas. M. Trainor, Gilbert, Ills.
146. C. A. Rawson, Iowa Pipe & Tile Co., Des Moines, Ia.
147. H. J. Votaw, J. D. Fate Co., Plymouth, O.
148. Teddy A. Randall, "Clay Worker," Indianapolis, Ind.
149. J. H. King, Colchester, Ills.
150. A. T. Leach. "Brick and Clay Record," Chicago.
151. Henry Hess, St. Cloud, Minn.
152. Jno. Venecklesen, Zeeland, Mich.
153. E. M. George, Main Belting Co., Chicago, Ill.
154. M. W. Lauer, Chicago Sewer Pipe Co., Brazil, Ind.
155. H. B. Sackett Screen & Chute Co., Chicago, Ills.
156. S. A. Williams, Jr., Chicago, Ills.
157. W. P. Kramb, Kramb B. & T. Co., Oak Harbor, O.
158. A. E. Ballin, Kramb B. & T. Co., Oak Harbor, O.
159. P. L. Simpson, Am. Clay. Mchy. Co., Chicago, Ills
160. Ernest Beutler, St. Cloud, Minn.
161. Jos. K. Moore, Denny-Renton Clay & Coal Co., Seattle, Wash.
162. E. D. Packard, Chicago, Ills.
163. F. H. King, Marion Steam Shovel Co., Marion, O.
164. A. J. Wheat, N. W. Tile & Clay Products Co., Emmettsburg, Ia.
165. Jos. Mitchell, McLaughlin Building Mat. Co., 145 La Salle St., Chicago, Ills.
166. Wm. C. Crolius, McLaughlin Bldg. Mat. Co., 145 La Salle St., Chicago, Ills.
167. S. G. Cass, Jackson Tile & Brick Co., Jackson, Minn.
168. Douglas F. Stevens, Acme Brick Co., Cayuga, Ind.
169. A. A. Oldham, Bonnot Co., Canton, O.
170. J. W. Turner, Yankee Hill Brick Co., Lincoln, Neb.
171. F. Ostdiek, Ostdiek Brick Wks., Ottumwa, Ia.
172. C. A. Marshall, Cresco, Ia.
173. J. F. M. Stewart, Fort Credit Brick Co., Ltd., Toronto, Ont.
174. A. E. Barron, Barron Dryer Co., Chicago, Ills.
175. C. C. Miller, Clermont Brick & Tile Co., Clermont, Ia.
176. S. K. Leacox, Keota, Ia.
177. T. H. Bollier, Seafield Tile Co., Seafield, Ind.
178. Jas. Robethan, Seafield Tile Co., Seafield, Ind.
179. A. L. Schultz, A. L. Schultz & Son, Chicago.
180. Victor H. Whitney, Chas. Berrick's Sons Co., Buffalo,
181. R. R. Buck, Buck Bros., Morris, Ills.
182. J. A. Steinberger, Rockwell City B. & T. Wks., Rockwell City, Ia.
183. C. G. Elliott, Drainage Investigator, U. S. Dept. Agri., Washington, D. C.
184. C. S. Reed, Chicago Retort & F. B. Co., Chicago, Ills.
185. Matthews Gravity Carrier Co., St. Paul, Minn.
186. C. E. Achuff, Matthews Gravity Carrier Co., St. Louis,
187. E. H. Haeger, D. H. Haeger Estate, Elgin, Ills.
188. Geo. D. Drennan, J. D. Fate Co., Plymouth, O.
189. Warfield Webb, "Brick and Clay Record," Chicago, Ills.
190. M. R. Winchell, Reporter, Chicago, Ills.
191. Elmer L. Brown, H. Brewer & Co., Tecumseh, Mich.
192. Claire Camburn, H. Brewer & Co., Tecumseh, Mich.
193. A. Barr, Urbana, Ills.
194. Geo. J. Walter, Chatsworth, Ills.
195. Arthur Walter, Chatsworth, Ills.
196. John A. Mehring, Napoleon, O.
197. A. J. Darton, Kohler Brick Co., Toledo, O.
198. H. Haigh, Catskill, N. Y.
199. H. H. Fate, J. D. Fate Co., Plymouth, O.
200. N. L. Mamer, Campus, Ills.
201. Oscar Frazee, Moweaqua, Ills.
202. Frank H. Reid, Memphis, Tenn.
203. M. J. Williams, Williams Pat. Cr. & Pul. Co., St. Louis, Mo., and Chicago, Ills.
204. Frank J. M. Silha, 325 Marquette Bldg., Chicago, Ills.
205. Albert Geasser, Dubuque, Ia.
206. Otto Schober, Monroe Steam Brick Wks., Monroe, Wis.
207. F. J. Lemley, Jones Fdry. & Mach. Co., Chicago, Ills.
208. J. D. Rumsey, Secy. N. W. Drain Tile Assn., Stryker, O.
209. Frank Fellers, Ridge Farm, Ills.
210. J. C. Paterson, Glasgow, Scotland.
211. M. E. Gates, Am. T. C. Co., Terra Cotta, Ills.
212. W. D. Gates, Am. Terra Cotta Co., Chicago, Ills.
213. N. H. Gates, Am. Terra Cotta Co., Chicago, Ills.
214. A. V. Bleininger, Champaign, Ills.
215. Ernest Reckitt, Chicago, Ills.
216. Curt M. Treat, Ch. Assn. of Com., 77 Jackson Blvd., Chicago, Ills.
217. H. R. Straight, Dallas Co. Brick & Tile Wks., Adel, Ia.
218. J. W. Weston, Blackman & Post Pipe Co., St. Louis,
219. J. T. Wallace, Blackman & Post Pipe Co., St. Louis,
220. John Heim, Dubuque, Ia.
221. A. E. Giles, Peoria, Ills.
222. J. S. Small, Browning Eng. Co., Cleveland, O.
223. August Machee, 906 Franklin St., Michigan City, Ind.,
224. C. E. Merry, Brown Instrument Co., Chicago, Ills.
225. Peter Munson, Capron, Ills.
226. W. H. Roettger, Salina, O.
227. Jno. L. Hull, Cambridge, Ills.
228. C. E. Hull, Cambridge, Ills.
229. H. J. Flood, Chisholm, Boyd & White Co., 57th and Wallace Sts., Chicago, Ills.
230. L. W. Flood, Chisholm, Boyd & White Co., Chicago.
231. V. S. Curtis, Alonzo Curtis Brick Co., Chicago, Ills.
232. C. Fred Foley, Independent Powder Co., St. Louis, Mo.
233. L. Shackelford, Des Moines, Ia.
234. Fred Stafford, Freight Agt., N. Y. C. R. R., Chicago,
235. Paul Grace, West Salem, Ills.
236. Fred Titterington, Argillo Works, Rock Island, Ills.
237. A. H. Yoder, Argillo Works, Rock Island, Ills.
238. C. W. Boyden, Sheffield Shale Tile Co., Sheffield, Ills.
239. Charles P. Stevens, Acme Brick Co., Cayuga, Ind.
240. L. E. Rodgers, L. E. Rodgers Eng. Co., Chicago, Ills.
241. A. A. Johnson, L. E. Rodgers Eng. Co., Chicago, Ills.
242. C. H. Johnston, Chicago, Ills.
243. Geo. White, Port Credit Brick Co., Port Credit, Canada.
244. G. D. Brubaker, H. Brewer & Co., Tecumseh, Mich.
245. Jno. W. Anderson, Jr., Woodland Clay Co., Woodland, Ills.
246. F. Lawson Moores, Harris Brick Co., Zanesville, O.
247. T. A. Habel, Henning, Ills.
248. J. C. Campbell, Ohio Ceramic Eng. Co., Chicago, Ills.
249. A. S. Currie, Reddick B. & T. Co., Reddick, Ills.
250. F. W. Wood, Adams Brick Co., Indianapolis, Ind.
251. J. W. Hensley, Indianapolis, Ind.
252. James Barr, Chicago, Ills.

253. C. D. Erlewine, Marion Mch. Fdry. & Sup. Co., Marion, Ind.
254. Frank McLellan, Arnold Creager Co., New London, O.
255. Fred C. Pulliam, Benton Brick Co., Benton, Ills.
256. J. H. Millsom, McComb Sewer Pipe Co., McComb, Ills.
257. W. D. Richardson, Ohio Mg. & Mfg. Co., Shawnee, O.
258. J. W. Robb, Clinton, Ind.
259. S. Kelly, Scott Madden Iron Wks. Co., Rushville, Ind.
260. W. R. Cunningham, Am. Clay Mchy. Co., Bucyrus, O.
261. Anton Vogt, Down Draft Kiln, St. Louis, Mo.
262. A. J. Freese, E. M. Freese & Co., Galion, O.
263 D. H. Anderson, "Irrigation Age," Chicago, Ills.
264. L. Aulmann, Eagle Iron Works, Des Moines, Ia.
265. H. C. Steinmayer, La Salle Pressed Brick Co., La Salle, Ills.
266. W. C. Hoover, Portland Drain Tile Co., Portland, Ind.
267. Ellis Lovejoy, Richardson-Lovejoy Co., Columbus, O.
268. I. C. Adams, Wellman, Ia.
269. R. S. Smith, Jno. A. Donohue Co., Chicago, Ills.
270. J. A. Glandon, Mexico Brick & F. C. Co., Mexico, Mo.
271. Bernhard Hammerschmidt, Lombard Brick Co., Lombard, Ills.
272. Finlay M. Drummond, Utica F. B. Co., Utica, Ills.
273. Arthur Keiler, Lombard Brick Co., Lombard, Ills.
274. Henry Kuhlmann, Lombard Brick Co., Lombard, Ills.
275. J. Parker B. Fiske, Sec. Building Brick Assn., N. Y.
276. H. A. Sodergren, Minneapolis, Minn.
277. L. W. Penfield, Am. Clay Mchy. Co., Willoughby, O.
278. S. Gunther, Port Washington, Wis.
279. H. A. Hilker, Hilker Bros. Brick Mfg. Co., Racine, Wis.
280. Jno. Ringle, Ringle Brick Co., Wausau, Wis.
281. W. J. Craney, Craney & Spaulding, Kenosha, Wis.
282. F. Vogt, Milwaukee Bldg. Sup. Co., Milwaukee, Wis.
283. J. W. Stipes, Sheldon Brick Co., Champaign, Ills.
284. A. W. Hilker, Hilker Bros. Brick Mfg. Co., Racine. Wis.
285. Salveson Bros., Petersburg, Ills.
286. J. O. Trautwein, L. E. Rodgers Eng. Co., Chicago,
287. Stanley Timberman, Brick Salesman, Chicago, Ill.
288. Harry Anderson, Brick Salesman, Chicago, Ill.
289. H. S. Preston, Mgr. Vigo Clay Co., Terre Haute, Ind.
290. Geo. C. Stephens, Bryant Supply Co., Kansas City, Mo.
291. F. W. Butterworth, Western Brick Co., Danville, Ill.
292. Warren Overpack, Alberta Clay Products Co., Medicine Hat, Alberta, Canada.
293. E. G. Westerberg, Chicago Fire Brick Co., Chicago.
294. C. C. Barr, The Barr Clay Co., Streator, Ill.
295-300. Illinois Brick Co.
301. F. G. Matteson. Purington Paving Brick Co., Galesburg, Ill.
302. F. L. Warner, Standard Brick Co., Crawfordsville, Ind.
303. F. H. Meier, St. Anne Brick & Tile Co., St. Anne, Ill.
304. U. A. Cote, St. Anne B. & T. Co., St. Anne, Ill.
305. J. B. Ashline, St. Anne B. & T. Co., St. Anne, Ill.
306. E. A. Morse, South Bend Brick Co., South Bend, Ind.
307. W. H. F. Parry, Brick Broker, Gary, Ind.
308. S. M. Chase, Chase Fdry. & Mfg. Co., Columbus, O.
309. A. C. Solfisburg, Aurora, Ill.
310. A. J. Dunn, Chase Fdry. & Mfg. Co., Columbus, O.
311. R. C. Penfield, American Clay Mchy. Co., New York.
312. Frank Halbeisen, Fremont, Ohio.
313. Fred A. Bach, Bach Brick Co., Chicago, Ill.
314. S. S. Kimbell Brick Co., Chicago, Ill.
315. S. E. Kimbell Brick Co.
316. Frank Biesanz, Winona, Minn.
317. N. L. Meir, Norman Coolie Brick Works, La Crosse, Wis.
318. J. H. Zeller, Brazil Clay Co., Brazil, Ind.
319. N. J. Snyder, Brazil Clay Co., Brazil, Ind.
320. Julius C. Bach, Chicago, Ills.
321. E. B. Griffin, A. Curtis Brick Co., Grant Park, Ills.
322. H. B. Crum, American Clay Mchy. Works, Chicago,
323. F. W. Von Oven, Martin & Von Oven, Naperville, Ills.
324-327. Illinois Brick Co.
328. Raymond T. Moore, Denny-Renton Clay & Coal Co., Chicago, Ills.
329. E. H. Achoff, Matthew Gravity Carrier Co., Minneapolis, Minn.
330. E. S. Ketchem, Chicago, Ills.
331. C. L. Rorick, Arnold Creager Co., New London, O.
332. C. C. Carhart, Sheffield Brick & Tile Co., Sheffield, Ia.
333. S. H. Trainor, Chicago, Ills.
334. W. Sedgley, Nebraska Brick & Tile Co., 2544 Chicago St., Omaha. Neb.
335. F. A. Hoiles, Alliance Brick Co., Alliance, O.
336. C. L. Buxton, Globe Mchy. & Supply Co., Des Moines, Ia.
337. Thew Automatic Shovel Co., Lorain, O.
338. M. W. Blair. Indianapolis. Ind.
339. A. W. Gates, Monmouth Mining & Mfg. Co., Monmouth, Ills.
340. P. A. Overmeyer, Lindsey, O.
341. Wm. J. Sullivan, Chicago, Ill.
342. E. A. Baker, Brazil Machine & Foundry Co., Brazil, Ind.
343. W. P. Blair, Nat'l P. B. Mfg. A., Brazil, Ind.
344. J. A. Gruver, Am. Clay Mchy. Co, Chicago.
345. Neil Sullivan, Am. Clay Mchy. Co., Chicago.
346. E. Vognild, Chicago, Ills.
347. W. H. McCarthy, Chicago, Ills.
349. R. D. Aitchison, Chicago, Ills.
349. F. L. Minor, Am. Clay Mchy. Co., Bucyrus, O.
350. W. H. Kaiser, Weller Mfg. Co., Chicago.
351. David Davis, Ills. Brick & Tile Co., Litchfield, Ills.
252. Walter M. Pratt, Earlville, Ills.
353. Geo. M. Krick, Decatur, Ind.
354. H. M. Baldridge, Illiopolis, Ills.
355. Jansen & Zoeller, Pekin, Ills.
356. D. O. Loy, Atkinson, Ills.
357. Wm. Lee, Urbana, Ills.
358. H. Moore, Urbana, Ills.
359. Tom Stipes, Champaign, Ills.
360. Joe Watts, Newton, Ills.
361. American Pulverizer Co., St. Louis, Mo.
362. Orestes Drain Tile Co., Orestes, Ind.
363. Joseph Riehle, Auburn, Ills.
364. Burlington Brick Co., Burlington, Ia.
365. Royal Stipes, Champaign, Ills.
366. F. M. Whiting, Streator, Ills.
367. E. C. Porter, Lewistown, Ills.
368. Lincoln Park Coal & Brick Co., Springfield, Ills.
369. H. E. Search, Bloomington, Ills.
370. J. A. Wilson, Dows, Ia.
371. Dr. A. L. Converse, Springfield Pav. Brick Co., Ill.
372. C. W. Stewardson, Shelbyville, Ills.
373. John B. Bennett, Urbana, Ills.
374. F. W. Alhorn, Morganfield, Ky.
375. L. C. Farnam, Pawnee, Ills.
376. Albion Shale Brick Co., Albion, Ills.
377. National Drain Tile Co., Terre Haute, Ind.
378. Mt. Carmel Dry Pressed Brick Co., Mt. Carmel, Ills.
379. Lodi Brick & Tile Works, Lodi, Ills.
380. S. M. Cowgill, Terre Haute, Ind.

# SAND LIME DEPARTMENT

## SAND-LIME MEN HOPEFUL.

The Flint (Mich.) Sandstone Brick Co. says: "We will say for Flint, Mich., the present year, which is now passing, started out to be a very prosperous one indeed for the building industry, and during the early part of the year, January and February, even while the coldest weather was upon us, we were shipping two cars of brick every day, which increased in volume during March and April, until June, when the sales reached six carloads of brick, average total, 70,000, besides six carloads of gravel, with an average of 35 yards per car daily. The gravel is loaded by dump cars, which are loaded in the pit and hauled up an inclined tramway, where they are tipped into gondola cars. We might add as a comment that we had to bear the brunt of the switchmen's ire whenever we requested the railroad company to remove our daily output, as it usually was a trainload of itself, and all cars heavily loaded, which made switching quite difficult.

Method of Procuring Sand, Melbourne.

"We manufacture only sand-lime brick at this plant, which has a daily capacity of 44,000 per ten hours. The large majority of our product is consumed by the General Motors Co., manufacturers of automobiles and accessories, in their several plants, the principal one of which is located in our city, although during June we furnished 1,500,000 to their plants in Detroit. Our brick, which are pressed and burned one day, are laid in the wall the next day, which is an advantage over the clay product, and the longer the wall stands, the harder they become, which can be verified by a glance at the huge plant of the Buick Motor Co., in this city. During the early part of July, the building industry took a decided setback, which was largely due to the scarcity of funds to carry on the tremendous work which had been laid out in this city. We took advantage af this slump to thoroughly overhaul the plant and get it in good condition, so on September 7th, we closed down for the winter, having 1,500,000 brick on hand to carry us through until March, 1911, when we anticipate resuming operations again. From the present indications, the brick industry for 1911 here will assume as great, if not greater, proportions than the passing year."

J. Harry Allan, general manager Winchester (Ky.) Granite Brick Co., says: "In the past year we have made and shipped about 2,500,000 brick, and while the building trade in our territory has been very greatly restricted, yet we have done fairly well. Our company has declared a 5 per cent annual dividend, payable the 24th, besides passing a small sum to surplus. We are improving our manufacture by installing additional machinery and are preparing for a big year in 1911."

## SAND-LIME NOTES.

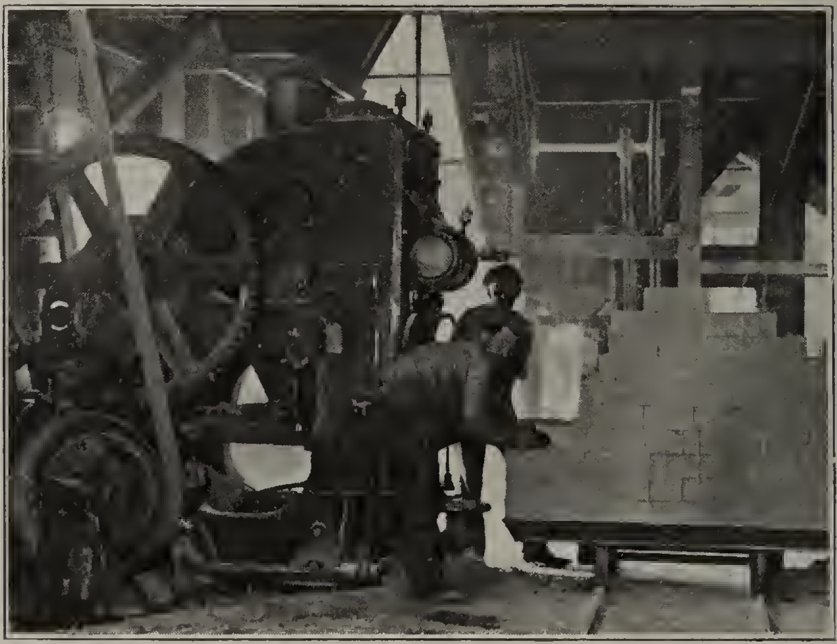
The Burdell Silica Sand Co., of Columbus, O., was recently incorporated by Foster G. Burdell, Hubert M. Meyers, John F. Bechtel, Ralph N. Harris and John F. Alburn, with a capital stock of $25,000.

The seven Sand-lime factories in the state of Michigan turned out during the past year, 32,000,000 sand-lime brick.

C. Moody Ryan is promoter of the Massachusetts Sand-Lime Brick Co., which is erecting a large plant at West Oxford, Mass. The foundation is completed, and work has commenced on the spur track. A carload of cement has been used in the foundations.

## INCREASE IN SAND LIME PRODUCTION.

During the discussion of business matters at the recent Sand Lime convention at Detroit, it was found that the production showed a 100 per cent increase for this year.



International Press, Melbourne Plant.

## SCARCITY OF PAVERS.

The scarcity of brick is hampering street improvements in St. Louis. Many miles of streets will not be finished this year on account of the contractors being unable to obtain brick. This is the greatest shortage ever known in the industry.

# WHAT THEY THINK OF IT

## This Decides the Question as to Whether the Trade Wants a Semi-Monthly

**Walter Colyer, of Albion, Ill.,** writes us: "The cementing of two good periodicals together into one greater and better one may be in part a concrete proposition, but with the Clay Record before me I am pleased rather to consider it as a move toward a more valuable and long enduring vitrified brick, a splendid product that will withstand a rattling good test in the great pug mill of public opinion. Certainly the union augurs well. Methinks, however, that already I hear the laminations of some of your No. 2 competitors; but take my advice—do not waste heat on them. But great Scott! be careful with your retorts. Do not Steele their Bonnots, overturn their Potts nor become too Bossy, lest they combine and repress you. Should worst come to worst they might Freese you out, Frost your ambitions, settle your Fate and in a Blair of triumph declare your name Dennis. Don't attempt any Lansing of the other fellow; to speak plain, don't try to kiln him. Keep your Hartwell, abstain from too much product of the Brewer,else it induce swell-belly, Robb you of your deserts, Barr you from success and compel you to subsist on gingerbreads. Understand, I would not screen your faults, for it is a burning question and checks are wanted. Therefore, strive for peace, and may Eudaly settle your fiery troubles in the vaulted Chambers of the Haigh continuous court. Can a Youngren build a nest? Is Butterworth what it costs? Can a Hammerschmidt mold a brick? Can a duck swim? In conclusion, let Lovejoy and progress be your slogan, and then you may safely exclaim: If you really believe you can make a better Brick, producer, Gas! But there is a Crook in high places and Conversely as you disregard our advice you will be overwhelmed with whitewash and die of grout.

**The Western Brick Co., of Danville, Ind.,** have written us: "We are glad to say a good word for the number of Brick and Clay Record just received. I wish to congratulate you upon this paper, and if you continue to keep up to this standard you will be deserving of the support of the entire trade."

**Merry Brothers, brick manufacturers of Augusta, Ga.,** say: "The new Brick and Clay Record is indeed a very pleasing issue, and one full from cover to cover with interesting reading matter and advertising. We are glad to see the merger, and if this, your first issue is a criterion, we feel sure that your readers will be greatly benefited thereby."

**Geo. O. Berry, Columbus, Ga.,** has written us his approval as follows: "I have received the first issue of the combined Brick and Clay Record, which has been read with much interest. With the consolidation of these two splendid papers, I predict a most successful future for your new journal. I find it a most readable paper and containing much valuable information for the brick manufacturer."

**The Lexington Brick Co., Lexington, Ky.,** write: "Enclosed, herewith, find check for $5.00 for which please renew our subscription for Brick and Clay Record, for six years. Brick and Clay Record at five dollars a year would be very cheap, but with the opportunity of getting it for six years at the above price—well if you can afford it we certainly can."

**The Diamond Fire Brick Co., of Canon City, Colo.,** have written us, saying: "We wish to express our appreciation of Brick and Clay Record, and to say that we look forward to each issue with a great deal of pleasure, and since it will now come twice as often at the same price, our pleasure will be doubled. If you only maintain four former high standard you will be doing well. However, we believe you will raise it if you say you will. It might be possible for a brick manufacturer to get along without Brick and Clay Record, but he would find it difficult to do so."

**The Flint Brick and Coal Co., of Des Moines, Iowa.,** express their appreciation of Brick and Clay Record by saying: "Your first issue of the combined Brick and Clay Record came a short time ago. It is a masterpiece, and we congratulate you. We are of the opinion that this merger means better things for the brick making fraternity, and believe that your efforts to produce a high grade journal will meet with great success. Your subscribers should include every manufacturer."

**The Golden Pressed and Fire Brick Co., of Denver,** write, us: "We are in receipt of the first issue of your journal and like it very much—we believe you are doing a very good work for the clay industries and wish you all possible prosperity."

**The Decatur Brick Co., of Decatur, Ill.,** writes us: "You need to be congratulated on the excellent edition of Brick and Clay Record you are publishing. The January number alone is worth the year's subscription."

**A letter of congratulation has been received from the Standard Brick Manufacturing Co., at Evansville, Ind.,** saying: "We beg to extend our hearty congratulations upon the consolidation of Brick and Clay Record, and also upon your purpose to give us two issues per month instead of one. We have always found your magazine to be highly interesting and we regard it as valuable in many ways to us and everybody interested in clay products."

**How the Barton Lumber and Brick Co., Jonesboro, Ark.,** view the journal. "We have received the first issue of the combined Brick and Clay Record, and while we have not had time to read it, we have looked through it and consider it the greatest production in the way of clay journals that has ever come from the press."

**F. R. Carter, Building and Paving Brick Manufacturer at Peoria, Ill.,** says: "In regard to the combining of Brick and Clay Record, will say that I think it a wise move. I know it will save me several times $1.00 per year. I do not see how you can give so much valuable data for so little money."

**Mr. Gustav Voelcker, President of The Deary Idaho Clay Products Co.,** says: "In the name of the company and myself, I wish to congratulate you on your wonderful success which you brought about with your efforts towards the Middle West Convention. It certainly was a success throughout just as much as your journal, Brick. Keep on going, Mr. Editor; you are doing well. You are the only one that does much towards the Western Clay Working Fraternity."

**The Hon. J. L. Stevens, President of the Boone Tile and Paving Co., Boone, Ia.,** writes, saying: "The combination of Brick with the Clay Record pleases me and no doubt will please all the subscribers of both publications. In my opinion it will give us a journal to be proud of. It ought to be in the home and place of business of every one interested in the manufacture of clay products, and the use of building material generally. Besides these classes, the public who ought to be interested in the improvements going on in architectural building lines will find it a very valuable periodical."

**Chas. M. Crook, general manager and treasurer of the Bessemer Limestone Co., Youngstown, O.,** writes us the following: "I have examined the first issue of Brick and

Clay Record. It is a most creditable number and there can be, I think, no question but that it is an improvement over its predecessors, and that it is a journal that will appeal to the wide awake clay worker. I wish you continued success."

**The Denver Fire Clay Co.,** have voiced their approval of the new publication in the following: "We have looked over your publication very carefully, and wish to congratulate you on same. It certainly covers the entire field. We have been subscribers of your magazine for years, and consider it the best of its kind that we know of. Wish you success and a most prosperous 1911."

**The Legg Brick Co., at Calhoun, Ga.,** say, in a letter to us of very recent date: "The January issue of the Brick and Clay Record has been duly received, and we must admit that it is a peach. You are doing a great work for the clay working industry, which all clay workers should appreciate. We wish for you much success for 1911."

**Under date of January 17, the Kansas Buff Brick and Manufacturing Co., Neodesha, Kan.,** write: "We have received the first issue of the combined Brick and Clay Record, and have found same to be very interesting. We have been a reader of Brick for sometime, and believe that the merger will mean much for Brick and Clay Record, as well as the readers of the combination."

The Tucson (Ariz.) Pressed Brick Co. write: "We think the merger of the Brick and Clay Record is a good move and will make the best journal in the world. I always found "Brick" very interesting. Enclosed find $1.00 check for our subscriptions to the Brick and Clay Record.

## TO USE SHAW PROCESS.

Capitalists at Chattanooga, Tennessee, are considering the proposition of organizing a company to erect a plant to produce brick by the Shaw process. It is said that with this process 120,000 brick may be manufactured daily. Brick are made in the comparatively short time of 200 minutes. The patent was applied for by Mrs. Frances D. Shaw of Chicago, the inventor. Under Mrs. Shaw's system the green bricks are placed in a car and run through the kiln, where they are subjected to the various temperatures required. The car travels at the rate of a foot per minute, and continues with its load from the fire chamber to the cooling room. The fire used in this kiln is produced by using water-gas. This fuel keeps the kiln at 2,250 degrees, and the fire can be quickly raised or lowered. A plant has also been erected at Atlanta, Georgia, for the use of this process, which has created much interest among brick manufacturers throughout the country.

## CLAY SCRAPINGS.

The Graef Mfg. Co., at Appleton, Wis., has had numerous fires during the past year. The one on November 24, lasting over three hours, almost completely destroyed the dry kiln and ruined the contents thereof, making a loss of about $800. As the new $20,000 plant is about ready to be put into operation the old kiln will not be rebuilt.

The company known as the North Brick & Supply Co., of St. Paul, Minn., has incorporated, capital stock $25,000. William J. Donahue, Jr., Martin Roche and John T. Herrington are the incorporators.

The Puritan Brick Co., composed of a number of Columbus, O., business men, has located a plant at Hamilton, O., where they own 2,700 acres of shale land.

A hearing was given members of the Ohio Face Brick Manufacturers in the Federal Building at Cleveland, O. Complaints were registered with Special Examiner Vassart, of the Interstate Commerce Commission, against the excessive rates charged by the express companies in Ohio.

## STUCCO HOUSES.

Our friends, the concrete experts, are apparently learning something every few days or so. Awhile ago it was gravely announced that concrete preserved the iron reinforcement, or any metal with which it came in contact. It would seem that experience has shown that that was not entirely a correct theory because we find such advertisements as the following in many of the journals. The stuff must sell well because the advertisements are not little half-inch affairs but whole pages in expensive magazines. Here's one:

"**Stucco Houses** must be protected against moisture, because the concrete is absorbent and will allow water to reach the wire lath by which the stucco is supported. When this occurs the lath RUSTS and the stucco peels off.

"———— is a paste which is mixed with the water used in wetting down the concrete, and is carried by the water to every molecule of the mass. It combines with the salts of the cement, forming a bond impervious to moisture. Its cost is negligible compared with the repairs necessary on unprotected stucco, and it insures a uniform texture and color to the finished job for all time."

How much better it would be for people to show real good sense and when they want a stucco house build one of hollow fireproofing tile, or, at least, have the external walls of a common brick. Stucco sticks permanently to either a brick wall or these hollow, fireproofing, clay tile and there is no rust to come through, and one has not to apply any wonderful paste to insure either the appearance or the lasting qualities of the stucco.

## NEW MONTANA PLANT.

An establishment which is destined to play an important part in the manufacturing and commercial life of Missoula, Mont., and the western part of the state, is the Standard Lime & Brick Co., recently established there. It is the purpose of the Standard Lime & Brick Co. to manufacture a high grade pressed brick from the fine clay which it owns in abundance and which has been pronounced by experts as of the highest quality for that purpose. The company will also make tiling and lime.

The Standard Lime & Brick Co. owns and controls 960 acres of clay and shale which is easily accessible and which will furnish material for the splendid plant built on property owned in Missoula. As the company will manufacture a variety of product, including common brick, face brick, vitrified paving brick, salt-glazed sewer tile, field tile, partition brick, flue lining and conduit, it may easily be seen that this territory offers the finest opportunity for the operation of such a plant and that its product will be in constant demand. The machinery and equipment is what is known as the "Producer Gas Kiln," and is in successful use by the following well-known companies: Columbus & Hocking Valley Coal & Iron Co., Kachelmacher, Ohio, who report 90 to 97 per cent of high grade ware. They are so pleased with results they are installing an additional kiln; Omaha Brick, Paint & Tile Co., Omaha, Neb.; Eastern Township Brick & Manufacturing Co., Lennoxville, Quebec, Canada; the Guignard Brick Works, Columbus and Columbia, S. C.; American Clay Co., Terre Haute, Ind. These companies report a saving of 60 to 71 per cent in fuel over the periodical or down draft kilns.

The Northern New York Trust Co. has been appointed a temporary receiver of the Watertown (N. Y.) Press Brick Co. opening the adjudication in bankruptcy, to take charge of all assets including the brick yards at Pamelia.

# Depreciation of Brick Plants

By W. D. Richardson.

Before declaring that dividend this month did you make proper allowance for depreciation of the plant? If you did not you have paid a dividend, in part, at least, from your capital instead of from profits, which is legally and morally wrong.

In making your inventory at the end of the year what valuation did you put upon clay deposits, upon power and factory buildings, upon boilers, engines, transmission appliances, clay-preparing and brick-making machinery, drier, kilns, etc.? You surely did not value these at cost—what per cent of the first cost did you write off? When you made your annual statement of the condition of your business with this depreciated value of your plant, was the surplus sufficient to justify the dividend you declared? In other words, did you set aside the amount of the depreciation or did you include this in your dividend?

Also in determining the selling price of your product for the coming year, did you figure in a certain percentage for the depreciation of your plant? If your selling price is made up without this element of depreciation you are deceiving yourself as to the ultimate profitableness of your business. If you have left out this item of depreciation it may be that you have omitted also other important items that must be added to the cost of manufacture in order to determine the legitimate selling price of your product.

What percentage of first cost should be written off each year for depreciation of brick plants? Evidently not the same for all plants nor the same percentage for every part of any plant.

In discussing this question we will assume that the plant is kept in good repair. Some think that when they keep their buildings, machinery and kilns in good repair they do not need to write off anything for depreciation. It is true that a plant that is kept in repair does not depreciate so rapidly as one that is not kept in repair and that there is no well defined limit to repairs—a building or machine may be repaired until it is eventually almost entirely reconstructed—yet practically everything in a manufacturing plant depreciates in value from year to year and a certain percentage of its first cost should be written off at every annual inventory.

It is not our purpose here to lay down any arbitrary rules for calculating depreciation, but rather to show the necessity of making allowance for it in each annual statement before paying dividends and of calculating it in the cost in order to determine the selling price of the product. It is hoped that the subject may be discussed in the columns of this journal and at our conventions, state and national, so that from a large number of views, some uniform method may be formulated that will enable brick manufacturers to calculate more accurately the cost of their brick and hence to place upon them a selling price that will give a fair return upon the investment and upon the time, energy and brain expended.

This has been done by associations representing other industries—the association not only laying down a figure for annual depreciation, but also prescribing a complete method of ascertaining production costs and running or overhead expenses. The purpose of such organizations taking up this subject is that each manufacturer may learn how to determine the price at which he can sell his product and leave a fair margin of profit. Otherwise, many will persist in selling at a price which ultimately lands them in bankruptcy or a receivership, thus damaging to some extent the interest of all.

This subject of the depreciation of brick plants has been much discussed in the meetings of German brick manufacturers and in German clayworking journals, but I can not recall a discussion of it in this country.

### Clay Resources.

There are few situations where the clay is not practically limited in quantity and where it can not be pretty definitely calculated when the supply, now in possession at least, will be exhausted. We have all seen situations where the life of the available clay deposits was altogether too short for the large sum invested in plants. It is evident that the clay supply must grow less every year the plant is run, and even though in some cases the large territory owned by the manufacturer relieves him from all anxiety on this score, yet the fact that his clay each year is becoming more inaccessible, making a longer haul or heavier stripping, a larger expense for up-keep of track or mine, has an effect upon the business similar to depreciation. Even if the clay will "last a lifetime," say even a hundred years, it is plain that a certain amount, proportionate to the length of time, should be written off every year for depreciation of the clay asset.

### Power and Factory Buildings.

What is the practically useful duration of your buildings? This is sometimes governed somewhat by the life of the clay deposit, changes in process or system of manufacture, etc., as well as by material and workmanship. Some write off 5 per cent annually for depreciation in power and factory buildings. In some cases it should be less than this and perhaps in some cases should be more, but ordinarily much less than this would be unsafe. What is your practice?

### Drier.

Driers are of such a variety of design and construction that the same figure for depreciation can not be applied in any large number of cases. A classification could be made, however, that would give a close enough figure for depreciation in almost any case.

The drier often causes the destruction of all the buildings from its liability to catch fire, but the tendency is to build driers more fireproof, especially tunnel driers, but even a drier built of fireproof materials, brick and concrete, depreciates to some extent from year to year. The equipment in most cases depreciates rapidly—the rails and especially the cars, rust out in a few years or become so weakened as to break, after which they are beyond repair.

The depreciation on the drier building may not be more than 3 to 5 per cent, but the depreciation of ordinary steel drier cars is from 10 to 20 per cent. Where sulphurous gases from fuel come in contact with moisture deposited on the cars, sulphuric acid is formed which eats away the iron very rapidly.

### Kilns.

The repairs on kilns, sometimes in a few years, equals the original cost, and though a kiln can be repaired from any condition, yet the time comes when it is cheaper to tear the kiln down and build anew—especially since by doing this the benefit can be had of a riper experience and of later developments. In fact, such improvement in economy or in results can often be had in a new kiln that it may pay to tear down a kiln, even though it might be used for many years.

The life of a kiln depends upon the type, design and construction as well as upon the temperatures employed, so that no iron-clad rule for annual depreciation can be laid down, but it is safe to say that 5 to 10 per cent should ordinarily be written off each year.

### Machinery.

In this are included boilers, engines, clay-preparing and brick-making machinery. In placing a figure for the per cent of first cost that should be deducted each year for depreciation, consideration must often be given to the fact that in a few years a piece of machinery, though not worn out, may become so out of date, by reason of later advances and improvements, that it pays to scrap it and buy the latest designs. Some of the most successful manufacturers in all lines are those who get only the first wear out of any machine and then replace it by something more modern. A different figure should generally be used in writing off depreciation on the different classes of machinery in use in brick making plants, the per cent depending upon the probable time that each machine can be profitably used, ranging from 5 to 20 per cent.

### Selling Price.

The selling price of a product should be made up of the cost of manufacture, the overhead or running expenses of the business and the profit. These running expenses consist of many items, such as interest on capital employed, taxes, insurance, depreciation, bad accounts, advertising, office expenses, officers' salaries, traveling expenses, entertainment, etc.

In beginning a business the allowance for many of these items must be estimated, but after a year or more they should be accurately calculated as a per cent of the previous year's sales and this per cent added to the manufacturing cost to find the selling price, less the profit. For instance, if the depreciation at the annual inventory amounted to $4,000.00 and the total volume of sales amounted to $100,000.00, 4 per cent should be added to the cost of manufacture on account of the depreciation of the plant. Each item of the running expense is in this manner reduced to a per cent of the sales of the year, and all taken together, gives the total per cent that must be added to the cost of manufacture in order to determine the price that must be obtained for the product before any profit can be realized.

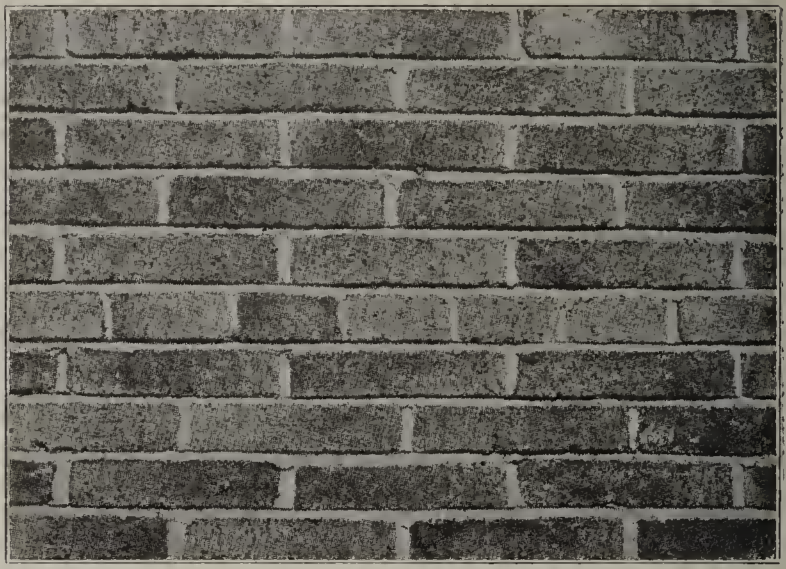
How many brick manufacturers base their selling price upon accurate cost calculations? Now is the time to take this matter up for the coming year, discuss it at the conventions and ascertain the most practical cost system for your conditions. The man who sells his brick for less than cost not only injures himself, but demoralizes the whole trade in his vicinity or market. Many do this unintentionally, since they do not know what the brick really cost them. Hence any help that can be given them by our trade journals and state and national associations, as well as by local organizations, must result in marked benefit to the whole industry.

## CHICAGO AS A CLAY CENTER.

Chicago, the metropolis of the middle west, uses over a billion common building brick every year in the construction of her buildings. To this great consumption of the most common form of brick can be added many millions of face brick, thousands of tons of hollow tile fireproofing and immense quantities of ornamental terra-cotta and terra-cotta facing, roofing tile and other clay products.

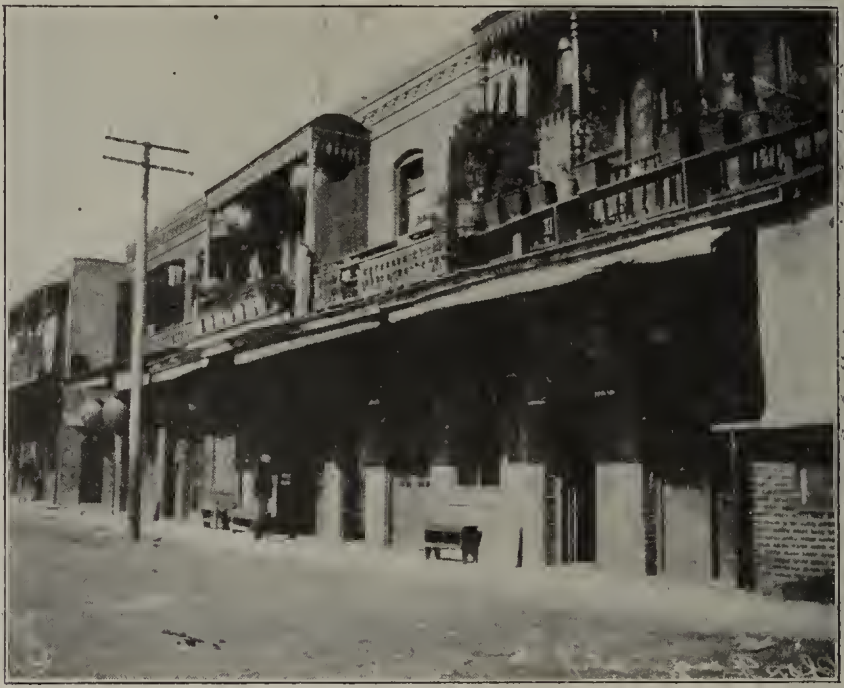
## CURIOUS PHOTOGRAPHIC EFFECT.

In a recent issue of the "British Clayworker" the accompanying illustration of the "rustic" facing brick made by the Ravenhead Sanitary Pipe & Brick Co., Ltd., as they appear when walled, was inverted by the printers, with a curious result. If our readers will turn the illustration upside down and compare it with the present view, they will see that when it is inverted the joints appear to be thrown out, while in the actual work, of course, as shown herewith, it is pointed in.



## QUAINT BRICK OF CHINA-TOWN.

Since the destruction of China-town in San Francisco, by the memorable 'quake, Los Angeles has entertained most of the visitors wishing this peep into Cathay. One and all they are surprised at the neat brick edifices which adorn the streets here. Somehow there is a certain cleanliness and evenness of setting, if you will, to these low 2-story houses which fascinates. The lower story is, as a rule, a series of doors, alternated with brick walls. On the upper story there is a small balcony adorned with plants and hung with the globular paper lanterns of which the Chinamen are so fond.



A Street in Chinatown.

The photo shows a typical street of the sort in Los Angeles.

A company has been organized at Toronto, O., by J. B. Nicholson and others with a capital stock of $250,000.

# Conduit Manufacture at the Plant of the Clay Product Company, Brazil, Ind.

Clay Mine—The First Step.

Since the sharpest competition exists in every line of trade, the man of brains and brawn puts his wits to work devising ways and means to make his product just a shade better than his competitors. This principle is the foundation upon which the Clay Product Co., of Chicago and Brazil, Ind., has built its reputation for making conduits well-nigh perfect.

During the first years of the transmission of sound and power by wire, the overhead method of support was extensively used. The increasing utilization of electricity, however, entailed the use of higher and stronger poles, so as to make their price almost prohibitive and in addition to that they encumbered the streets, obstructed the view and became regarded as a general nuisance. Relief was sought by imbedding of the wires underground. Not only is the underground method of construction the best from an aesthetic standpoint but it effects a considerable decrease in the cost of maintenance.

In the first experiments in this direction made by Morse, the wires were covered with gutta-percha and laid in a trench. This was known as the "built-in" system and different methods of this system were developed, each with a view of securing a proper insulation for the wire and protection against earth-moisture. This insulation was never properly maintained and the system was soon supplanted by what is known as the "drawing-in" system. In this system the wires are incased in troughs or tubes made of different materials, among which may be mentioned wood in the form of pump logs, heavily saturated with creosote, cement pipe, iron pipe and cement combined, asphalted paper, piping and vitrified clay conduits.

On account of the growing danger from the extensive use of overhead wires for telephone, telegraph and motor uses, municipalities are coming more and more to a realization of the great necessity of putting all wires underground. This has created an unusual demand for clay conduits which have proven more satisfactory than any other so far.

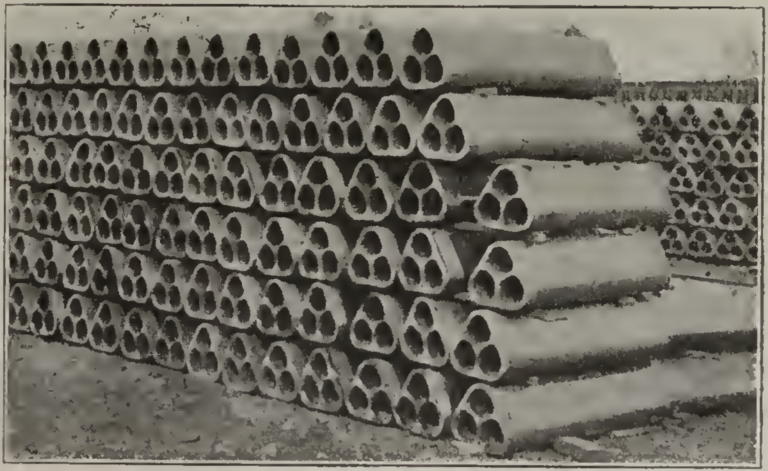
Many clay manufacturers are turning their attention to this line with profit.

The Clay Product Co. approached conduit manufacture from the electrician's viewpoint with a full knowledge of the necessary requirements. All the force and energy of the entire organization centers on the making of one product—the best conduit. Only skilled artisans and workmen experienced in this production are employed. All that science, technical knowledge and practical experience can offer is brought to bear upon the process of manufacture.

The clay is scientifically tested. The machinery is the latest and best for the manufacture of a finely-screened, floured clay into a perfect conduit. A definite formula regulates the dry-rooms calculated to make the straightest, hardest and most homogeneous ware. The kilns are equipped with recording pyrometers insuring accuracy and uniformity of product, impossible of attainment by the old cut-and-dry methods of cone or test-piece burning.

Plant of the Clay Products Co., Brazil, Ind.

Only by this method of intensive and extensive specialization of one commodity is the Clay Product Co. enabled to give to the consumer every advantage in cost price and excellency of wear; its aim being to cater only to those desiring the best, insuring to their customers a saving in cost and permanency of construction.



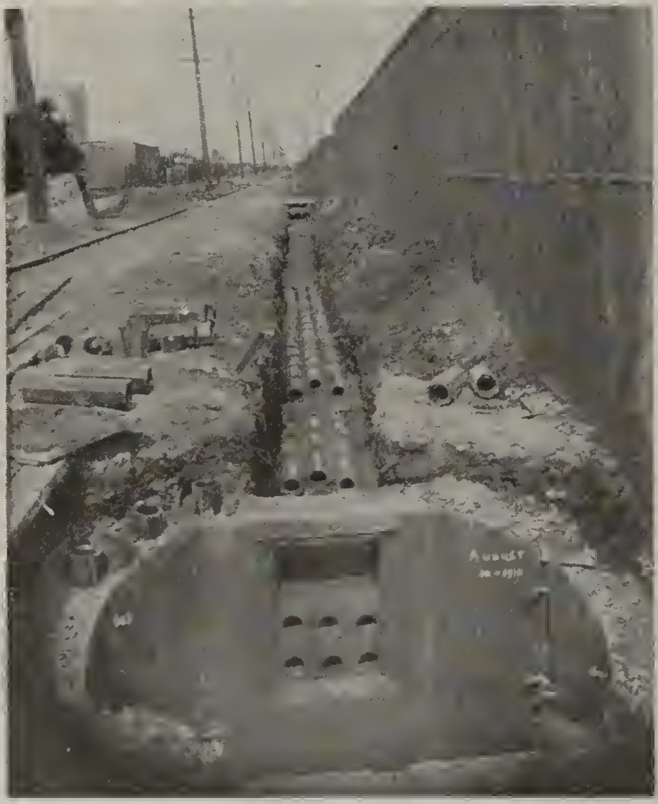
C. P. C. Triangle Three-Duct Conduit.

The company has made many improvements on the standard forms of conduits to meet every need of the consumer, effecting considerable saving in unnecessary expense in freight, repairs and general maintenance. That these improvements have met with approval is evidenced by the enviable reputation the company has established among conduit consumers in the West and South during the past few years.

The Central Union Telephone Co. Replacing Overhead with Permanent Underground Construction in Rock Island and Rockford, Ill.

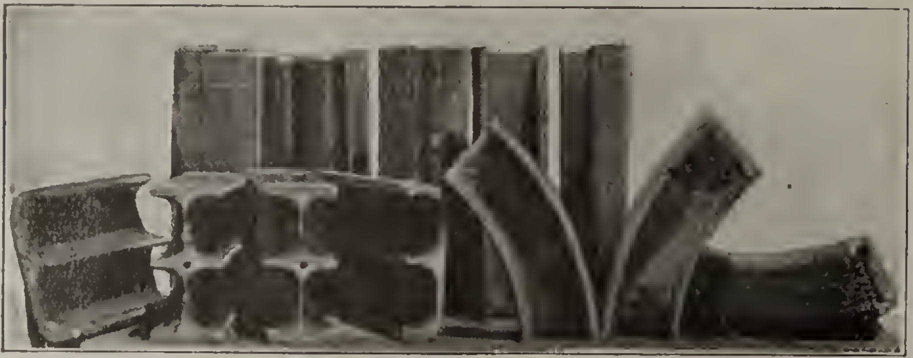
The single conduit is convenient for many purposes, especially for the building of high-service trunk lines for the transmission of power and light, as it permits of the breaking of joints and allows two heavy insulating walls between all cables where the multiple duct conduit allows for one only; but its use is unwise in low-tension lines on account of cost of construction; multiple-duct conduits being much more accurately and economically laid and much cheaper to handle.

The standard single-duct is 3½ ins, square, and is also universally used by the larger power and light companies. The round single-duct conduit effects considerable saving in freight charges; the two and three-duct standard conduit is used for laying two or three cables in terminals or laterals from the main trunk line or for the building up of trunk lines to the number of ducts required. This style of conduit can be manufactured only 2 ft. in length to insure good straight pieces. On account of the extra expense in handling this short length it often times proves cheaper to lay an extra duct in the long multiple duct conduit, in cases where the ware is to be laid separately in a trench the triangular three-duct conduit proves the most economical.



The Most Permanent Construction Possible. Using 1½ Ins. of Concrete Between the Strongest Conduit Manufactured—C. P. C. Round-Duct-Singles City of Winnipeg, Smith, Kerry & Chase, Engineers.

A Concrete Man-Hole—The City of Winnipeg. Power Construction, by T. M. Gest, Contractor.



C. P. C. Split Conduit.

For telephone and telegraph usage the long four and six-multiple conduit presents the advantages of economy and constructive simplicity, working efficiency and ease in pulling cable. Besides these and other styles the company has facilities for making up any new or special designs on short notice. A split cable is used for repairing conduit lines without removing the cables and for covering cables in manholes.

Metal joint wrappers, seal-plugs and dowel pins are used for sundry parts of the laying process. The conduit to be permanent must be thoroughly vitrified to resist the action of all eroding elements, perfectly glazed on the inside surface to cause the least possible degree of resistance in the pulling of the cable. Contrary to the general impression the glaze is not needed on the outer surface if the conduit is thoroughly vitrified, and it would be an advantage if it were possible for them to be glazed only on the inside.

The isolation of cable is desirable for many reasons, the principal ones being to guard against the spreading of burn-outs, and to counteract the accumulating rise of temperature due to interchange of heat. Tests show that with the same current the cable keeps comparatively cool in vitrified conduit, as compared to the more porous concrete.

Loading—The Last Step.

A Bungalow Built of "C" Conduit.

Home Telephone Company, Kalamazoo, Mich., Using "B" Conduit.

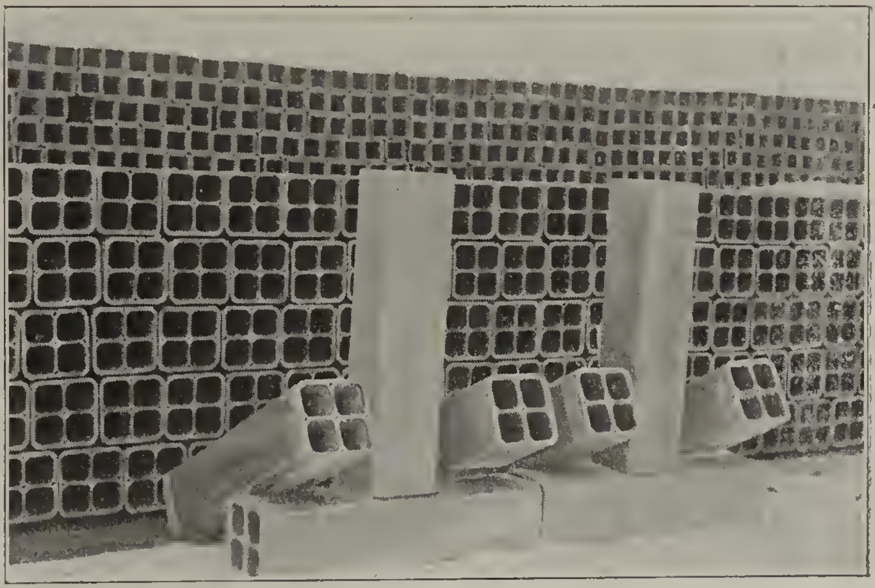
Thoroughly Vitrified in the Kiln.

The cost of the conduit is such a small part of the total construction cost that the best conduit is, by all means, the cheapest, even though it cost a cent or two more per duct foot. The application of underground construction to railway signal work is being discussed with interest in railway circles, but for the present the best method of laying has not yet been decided.

Norfolk, Neb., Long Distance Telephone Company Using Triangle Three-Way, Showing Method of Making Mortar Joint in the Trench and Dispensing with Concrete Envelope.

The plant of the Clay Product Co. is admirably situated one mile south of the town of Brazil, Ind., on a level tract of land comprising forty ares; near by the company has an additional one hundred and forty acres of land, underlaid with a fine body of fire clay, mixed with the proper fluxing material to form just the elements necessary to make the conduit,—which is often copied with unsatisfactory results,—on account of artificial mixing of clays.

The principal buildings of the plant are a three-story main building; an office building; a three-story drier; blacksmith and carpenter shops; a store house; barn and garage, and a boarding house and superintendent's house built of hollow block and cull conduits. Two 9-foot dry-pans, supplied by the American Clay Machinery Co., Bucyrus, O., are used for grinding the clay, which is then elevated to the three Dunlap screens, all with 1/16-in. mesh; a bucket elevator conveys the clay to two pug mills which serve two machines.


C. P. C. Split Conduit.

Almost the entire equipment of machinery was supplied by the American Clay Machinery Co., Bucyrus, O. The power plant consists of a 250 h. p. Atlas engine and two 150 h. p. boilers. The kiln battery comprises twelve 32-ft. down-draft kilns with eight open grates in each. The ware is set 6 ft. high and the famous "Brazil Block" coal is used for burning.

No conduits are allowed to leave the yard until inspected by an expert, so thoroughly versed that a scratch from a knife or a tap of the hammer reveals to him the slightest flaws in the conduit.

The success of the Clay Product Co. reflects great credit on the present management. The officers of the company are: H. H. Titsworth, president; F. W. Darling, vice-president; C. F. Shannon, secretary. Their Chicago office is in the Stock Exchange Building.

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

# BRICK AND CLAY RECORD

Vol. XXXVIII. JANUARY 15, 1911 No. 2

## EDITORIAL COMMENT.

We are entering upon a new year, full of opportunities and chances for improvement. Forget the failures of yester-year, remembering only the lessons learned thereby.

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The past year was exceptionally active in many ways, but the chances are ten to one that the present year will show an increase over the past one, and it is apparent that there is a more hopeful feeling in commercial and business circles.

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It is up to you largely to determine what the future holds for you. You will get what you go after. Be sure you go after the right thing in the right way and success is yours.

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It is an excellent plan and an excellent safeguard to have an "understudy" for all important positions about your plant. Then, when an accident occurs to your best man, or he gets unbearably "big-headed," it is a comfortable feeling to know that if the worst comes to the worst and there must be a parting of the ways, you have another one ready to step into his shoes.

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No marked success can be attained in any line of endeavor without enthusiasm. Enthusiasm is the fuel which furnishes power to overcome obstacles and surmount seemingly insurmountable barriers. Enthusiasm furnishes faith and intitiative, a combination which works miracles. Instill the germ of enthusiasm into your plant; let your men see by your attitude and manner that work, well done, means joy, pleasure and satisfaction. It will permeate every department of your industry, begetting effects beyond your expectation, in increase of production and decrease of cost.

## RETIREMENT OF A VETERAN.

Mr. George Hartwell, familiar to the brick manufacturers of the country through his nineteen years constant efforts in their behalf in the columns of the *Clay Record,* and also through his work as Secretary of the Illinois Clay Manufacturers' Association, has severed his ties with the industry, having disposed of his interests in the *Clay Record* to the publishers of *Brick,* which will be known hereafter as *Brick and Clay Record,* and will appear as a semi-monthly.

Mr. Hartwell is a genial man, of kindly intents, with a genuine desire to help his fellow-men, and would not knowingly injure anyone. These qualities have won many friends.

Mr. Hartwell's health is not of the best, and he will retire from active business cares and turn his attention to his summer resort at Lake Noque bay, Wis. He will, however, retain his office in the Plymouth building, Chicago.

The last issue of the *Clay Record,* published December 30th, contained the following editorial:

"With this issue of the *Clay Record* the journal ceases its existence, and will at the next issue be combined with *Brick* in the new semi-monthly *Brick and Clay Record,* which without a particle of doubt will be the foremost clay publication in the world.

"The editor in making this announcement wishes to express to his readers and advertisers his appreciation of their consideration extended him during nearly twenty years connection with the trade. During this long period, over half a generation, it has been his constant aim and effort to advance the best interests of the clay industry and it is his firm conviction that he has succeeded in this purpose.

"He has made many friends, and if any enemies, is ready to forget past differences. Some could have done better, but all that man is asked is to do his best and this has been his constant endeavor. While severing his active connection with the trade he shall always maintain the highest regard for his many friends in the clay industry.

"The *Clay Record* ceases; but, as was said of Old John Brown, 'Its Soul Goes Marching on.'"

## *COMING CONVENTIONS*

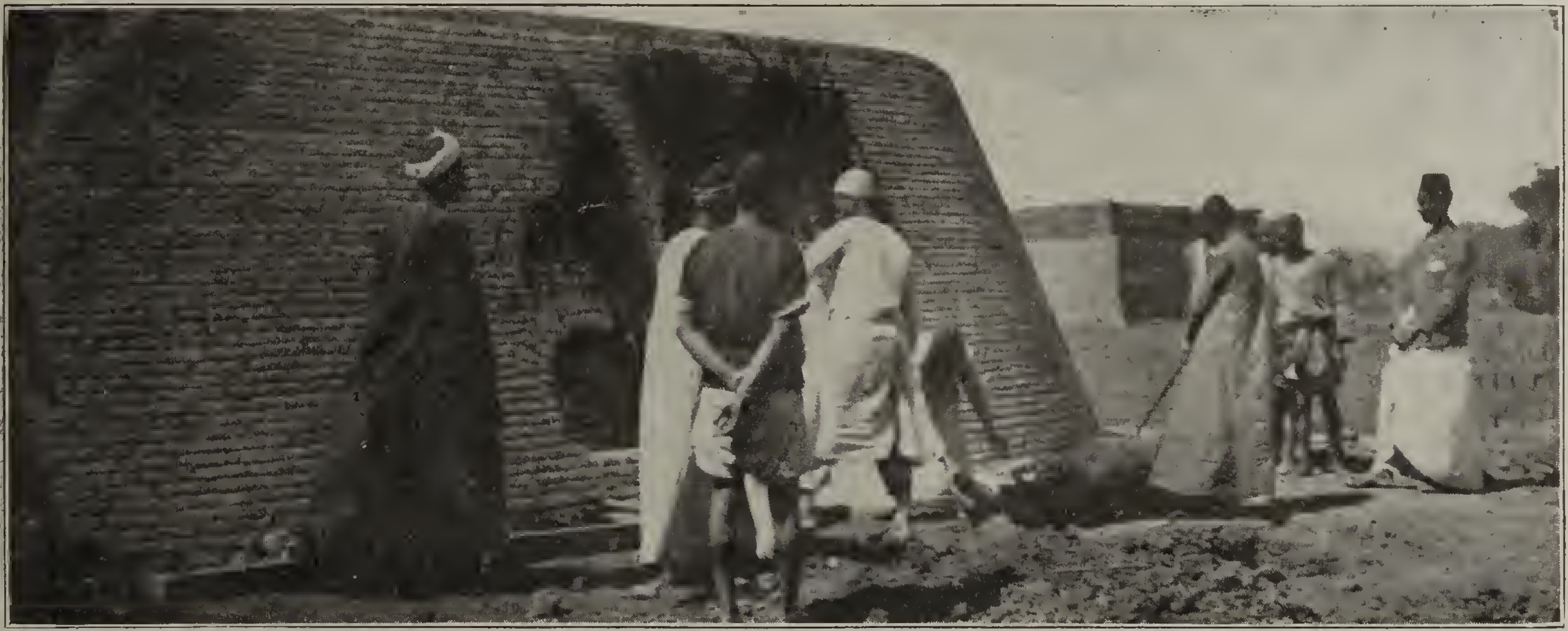
**Iowa Brick and Tile Association, Boone, Ia., Jan. 25-26.**
**Wisconsin Clay Manufacturers Assn., Milwaukee.—Feb. 1-3.**
**National Brick Manufacturers Association, Louisville, Ky., Feb. 7-10.**
**National Paving Brick Manufacturers Assn., Louisville, Ky., Feb. 6-8.**
**Building Brick Association of America, Louisville, Ky., Feb. 6-10.**
**National Association Manufacturers Clay Working Machinery, Louisville, Ky., Feb. 8.**
**American Ceramic Society, Trenton, N. J., Feb. 14-17.**
**Northwestern Clay Association, Minneapolis, in April.**
**Brick Makers Association of Arkansas.—Date not set.**
**Washington Clayworkers Association, (and Pacific Northwest Assn.), Seattle, Jan. 26-28.**
**Ontario Clay Workers Association.—Date not set.**
**Louisiana Brick Makers Association.—Date not set.**
**International Tile and Mantel Dealers Assn., New York, February.—**
**National Builders Supply Assn., Feb.—**

# BRICKMAKING ON THE NILE

## Antique and Primitive Methods Combined With Sacrificial Rites Still in Use

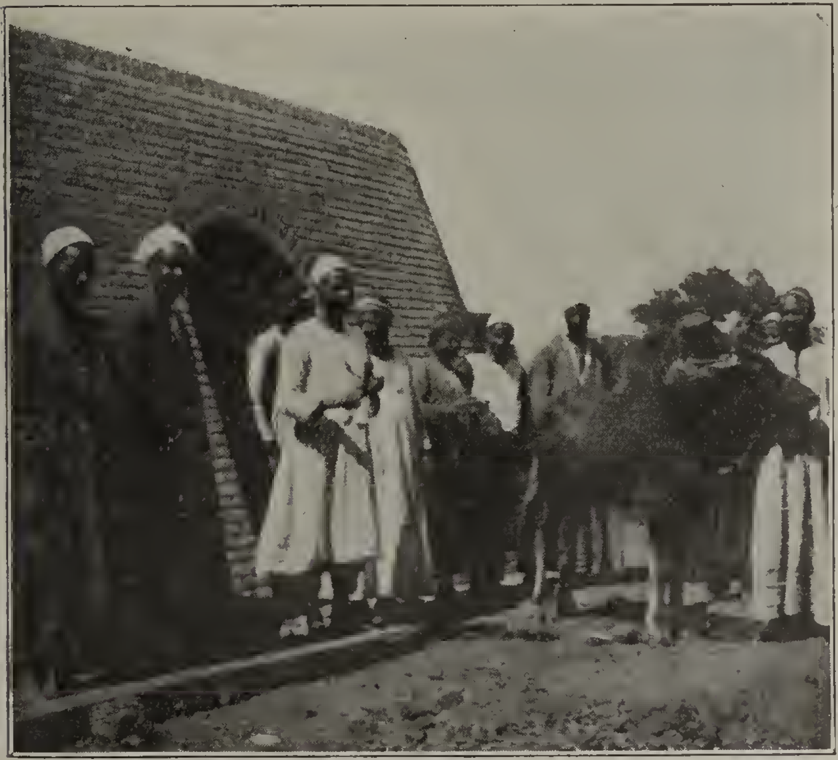
From our earliest remembrance the name "brick" seems to be indelibly linked with thoughts of Egypt, where the "bricks without straw" were a burden to the children of Israel, bending beneath the burden of Pharaoh's lash.

It is "a far call" from our modern up-to-date plants, with all the new labor-saving processes, to the back-breaking, primitive methods still in use in Egypt, which we may consider the natural home of brick. The art of brickmaking was practiced there in centuries past, and the same methods have held throughout the ages in this unprogressive country, with little evidence of a desire for improvement.



Showing Sacrificial Blood Applied to Kiln.

These brick, though rough, crude and ill-made, served the purpose of building a rude shelter, designed more for shutting out the heat than the cold, which no doubt was as dear to the Egyptian's heart as some of our more pretentious palaces occupied by our "poor rich"—for it was his home.



Bullock About to be Offered as a Sacrifice.

Priest Officiates at the Finish.

We may imagine the early settlers of Egypt, traveling in search of a spot in which to settle, coming to the river Mesopotamia; unable to find other building material and finding the soil rich and tenacious, they moistened it with water and, adding a little chopped straw, formed it into cubes, which, when dried by the heat of the sun, served as bricks. Such, the earliest forms of building brick, are used even in these latter days by the poorer class in Egypt, where climatic conditions favor the use of materials which would moulder and fall to dust in our rigorous climate with its lightning changes of atmosphere.

The old Pharaohs would turn over in their graves, if they had not already been transplanted to our American museums, if they could know of the modern methods of making brick with patents for handling large quantities and Mrs, Shaw's process for making and burning brick in 200 minutes would certainly "put a few crimps" in the stiffest mummy in the lot.

The American Clay Machinery Co., Bucyrus, O., has gathered together this interesting group of pictures, illustrating the curious and interesting methods employed in the present-day brickmaking in Egypt. An innovation, which I fear it would be difficult to introduce in our country, is that the women and children do the hard work, while the "lords of creation," attired in immaculate garb, act as "bosses."

The clay is dug out of the pit by hand, heaped into trays or slabs of wood, which are carried on the heads of the women to the mixing tables, where the clay is "pugged" by a liberal dousing with water, mixed by hand, and slapped into a mould previously dipped in water to prevent sticking. After being spatted into shape they are turned out and stacked in the sun to dry. At this particular plant some enterprising American or Englishman has beguiled the innocent natives into the use of a somewhat modern kiln, in which the sun-dried bricks are burned. Fuel is a scarce article in Egypt, and we are not apprised as to the fuel used at this particular plant, but our latest information is that dried mummies are the most approved and economical fuel in that far country.

Loading Conveyors.

The Egyptians are prone to preface every action, from bathing the baby to burying the dead, by sacrificial rites, so when the kiln is set a young bullock is brought to the scene; the priest in his official garb, with a consecrated knife, kills the bullock, smearing the blood over the walls on each side of the kiln doors. After a few mumbled words the priest raises his hands, solemly declaring the kiln is blessed. Some of our brethren who are troubled with faulty kilns and "poor burns" might try this method with some degree of success After this proces, the priest ascends to the top of the kiln and when the last opening has been closed, seals the opening with clay, going through some more of his magic rites.

After the burning process, the kiln is emptied by the women, the brick being loaded onto slabs, which are carried on the heads of the women and children as shown in the cut, his royal highness "man" standing by giving the orders. No "new women" or "woman's suffrage" here, but "woman's sufferage," and one could scarcely blame the burden bearers if by some premeditated accident the brick should accidentally alight on his lordship's feet.

In laying the brick, the women and children act as hod carriers and attendants, his "majesty" in this instance condescending to smear on the mortar.

Since there are no forests in Egypt, brick will always be the natural building material there, and with the advent of foreign capital and the introduction of new lines of business the brick industry will no doubt progress with developments in other lines. There is an opening there for some of our enterprising clay machinery men to gain a foothold in establishing new industries.

Human Conveyors.

A recent inquiry regarding the clay industry, in the Sudan, has brought out the fact that cities in that region are rapidly developing, and that construction is carried on along the most advanced lines. At Khartum, the capital of Sudan, and one of the important markets, buildings are being erected very fast, and the city will in a few years be a real capital. English and German capital is being invested in numerous enterprises, and brick, tile, sewer pipe and other pottery products will shortly be manufactured. The matter has recently been settled, and a large establishment will manufacture all these products, so that they need no longer be imported. While there exist on the Nile numerous potteries, they are not large enough to supply the whole country, and new factories will be needed to take care of requirements.

Beats the Penfield.

# WHY DAYTON IS FAMOUS

## Magnificent New Home of the C. W. Raymond Company an Evidence of Prosperous Development

To some people the name Dayton, Ohio, brings to mind the subject of flying machines, but to the clay-working world, when the name of this Ohio city is mentioned, is associated the thought that this is the home of the C. W. Raymond Co., the well-known manufacturers of clay-working machinery. For half a century this name has been closely identified with the great clay industry and has kept even pace with the progress and development of clay-working methods.

Chas. W. Raymond started in life as a blacksmith, and received his inspiration from his first invention in the repairing of the old wooden wheels used in tempering, his first patents being, in 1880, for a tempering wheel made of iron. This was followed by patents of a dumping wagon for dumping brick, followed later by the hand represses and power represses. When Mr. Raymond first entered the clay-working field, the manufacture of clay products was in the most primitive and undeveloped state and his little machine shop on the outskirts of Dayton was ample for the needs of the industry at that time. Mr. Raymond, however, has never been a man to follow in the wake of others and his policy has been rather to lead in the development of new ideas than to wait for some one else to show him the way. Year by year, therefore, he brought out new and improved machinery and equipment to fill the requirements of the clay industry and the products of his brain and machine shop have always found a ready sale among clay products manufacturers.

Year by year the demands of the industry have required increased production from the Raymond plant and year by year the facilities have been increased to meet these requirements. At last, however, even the enlargd shops and buildings available at the old site have proven entirely inadequate and today there stands on a new site, a collection of substantial and attractive new buildings, housing the great plant of the Raymond Co. and in size, importance and completeness, fairly representative of the present immensity of the clay industry and a striking monument to the growth, enterprise and success of the C. W. Raymond Co. and its founder, and representing an invested capital of $500,000.

The first impression that a visitor to the new plant receives is that the character and appearance of the buildings are highly representative of the industry which the plant serves, forming a high example of modern clay construction throughout. The walls of the machinery buildings are all of brick and the roofs are covered with clay roofing-tile. In the construction of the walls, the modern idea has been carried to fulfilment in securing a harmony of coloring and texture. The brick are semi-vitrified and flashed and were made in Shawnee, O. The variation in shading and coloring and the raked joints and dark red mortar, give the walls that texture and harmonious effect so sought after in present day brick construction. This harmony in color effect is carried out by the rich red coloring of the tile roof.

Front of New Raymond Machine Shop.

For the architecture of the buildings, the Raymond plant presents features of unusual architectural beauty, for which credit can be given to the well-known architect, N. Neumayer, who was formerly architectural engineer for the Geo. B. Post Co., famous designers of sky-scraper buildings in New York City.

The new Raymond plant occupies now an eight-acre tract on Bolander Ave., about five miles distant from the old plant and in the center of Dayton's greatest industrial activity. Not far away are the immense buildings of the National Cash Register Co., one of the greatest industrial enterprises of the age; also adjacent, are the works of the Wright Brothers, where flying machines are now being manufactured on a commercial basis. The transportation facilities are especially advantageous; the plant closely adjoins the C., H. & D. Ry., which is within switching distance of the N. Y. Central, Pennsylvania, Erie, Dayton & Union, and Dayton, Lebanon & Cincinnati R. R.. The plant also has connection with several of the important electric lines, permitting quick delivery of freight throughout Ohio and Indiana.

General View Raymond Shops.

Something of a record was established in the construction of the new Raymond works. The ground was broken early in 1910 and the buildings were constructed in a period of six months, which is quick time considering the character of their buildings and their size, and the form of construction adopted. The construction work has been supervised throughout by C. W. Raymond, Jr., who has practically "lived on the job," devoting most of his time to the details involved in the building operations. The buildings are absolutely fireproof, being of steel-frame construction, many tons of structural steel having been used in their erection. The window and door frames are of galvanized steel and the windows are glazed with ribbed wire glass. The floors are of cement of great thickness and practically indestructible. Nearly half a million brick were used in the construction of the walls

Mr. Charles W. Raymond.

A study of the new Raymond plant produces a convincing impression of its entire completeness and the perfection of the arrangements of the buildings producing the greatest possible economy in the methods of operation.

Facing the main manufacturing building is the neat and attractive office building, which has been equipped with all the facilities so necessary to modern up-to-date methods of business conduct. The offices occupy two floors and provision has been made for all of the executive departments, which include the accounting, executive, advertising, sales and ceramic engineering departments and also the private office of Mr. C. W. Raymond, Jr. The office building, while complete, is of modest size and character, no money having been wasted in luxurious fittings or unnecessary elaboration. A private telephone system connects with all offices of the works and a direct private long-distance wire of the American Telegraph and Telephone Co. provides a superior telephone service for out of town customers.

## The Main Machine Shop.

As a visitor enters the main machinery building, he must be impressed with the immensity of this enterprise and the great extent of the working floors. Gazing down the length of this building, which extends 325 ft. from end to end, one sees the modern ideas in the machine shop construction and arrangement carried out to its perfection, every detail of construction having been designed with the one idea of facilitating and economizing the methods of manufacturing. From side-wall to side-wall of this main building is a distance of 100 ft. and the apex of the roof over the main erecting room is 52 ft. above the floor. This vast area of solid cement main floor gives a working space of 32,500 square feet. On either side of the main erecting floor extend long working galleries, the entire length of the building. These galleries are in themselves complete shops arranged for specific purposes. They are each 25 ft. in width and thus the entire floor space of the building is increased to the immense area of 48,000 sq. ft. or over an acre floor space in this one building alone. Not an inch of this great space is wasted. The working gallery on one side includes the draughting rooms, the pattern shops and the wood-working department. The opposite working gallery includes the die department and the machine shop for the manufacture of small parts.

From one end to the other of the great erecting floor extends a car track over 300 ft. in length and this connects at the rear with the standard-gauge railroad track by means of which freight cars are brought directly into the floor of the main erecting shop for convenient loading. Entrance is made at either end through large doorways provided with immense Kinnear rolling steel doors and of these doors there are five used in different parts of the plant.

Overhead in the main building, sweeping from one end of the great erecting floor to the other, is a giant Whiting electric crane, handling its heavy burdens with astonishing ease and rapidity. With this crane any heavy casting or complete machine can be handled. Even one of the big Raymond 999 special brick machines complete, weighing approximately 15 tons, can be swung off the floor and aboard a freight car ready for its journey to any part of the world to which it may be destined.

Along each side of the central, or erecting floor, and under the working galleries, are located the various large machine tools required in the manufacture of clay-working machinery. Among these are included an immense 16-ft. planer, a 10-ft. boring mill, lathes of all sizes, from the big ones used for turning shaftings down to the small tool sizes. This equipment also includes a variety of especially designed tools and machines, constructed for the Raymond Co. for various purposes required in making parts of clay machinery.

Machine Shop from Bridge.

The machines are arranged in groups, each group being driven independently by a 10-h. p. Allis-Chalmers motor. Through this arrangement much shafting and transmission equipment is eliminated and economy is effected through the ability to operate portions of the plant without wasting power for driving shafting in other departments.

A considerable space in the main building is set aside for the reserve stock of machinery parts, ready for assembling. At one end of the building is the office of the general superintendent, slightly elevated and glass-enclosed, permitting his constant oversight of every part of the shop. For the handling of patterns, etc., from the side galleries to the main floor, two 3-ton elevators are provided.

### The Foundry Department.

Adjoining and at right angles with the rear of the main machinery building is the foundry building, a structure of graceful appearance, 125 ft. in length and 110 ft. in width. In this building is located the big cupola, which has a capacity of 12 tons of metal hourly. All the needed equipment for a first-class foundry, capable of handling castings up to ten tons in weight, is here provided. A striking feature of the arrangement is the convenient and efficient system for the charging of the cupola. An elevator at the rear, of two tons capacity, carries the iron and fuel from a point at the rear of the building adjacent to the stock piles up to the charging floor near the top of the cupola. This charging floor is so arranged as to overlook the entire foundry, forming a gallery from which the superintendent can oversee the work in progress on the molding floor below, while attending to the expert supervision required in the charging of the cupola. Adjoining the cupola is a Sturtevant positive-pressure blower, operated by a 30-h. p. electric motor.

Another electric traveling crane, of ten tons capacity, travels from one end of the foundry to the other and this building is also connected with the machine shop tracks and the entire industrial railway system of the plant.

Rear View, Showing Railway Facilities.

### Other Buildings.

Back of the foundry is the dry car shop fully equipped with forges, pneumatic riveters and all the other machinery required for the economic and rapid construction of Raymond dry cars.

At the right of the foundry is the pattern storage warehouse, a building 50 ft. wide and 200 ft. long; its interior most conveniently arranged for storing of the immense quantities of wooden machine patterns of the Raymond Co.

Adjoining the foundry is another brick building which might be called the electric power house, in which is located the electric transformer station equipped with apparatus required for reducing the 2,300-volt current supplied by the city to the 220-volt line required in the plant for power purposes and the 110-volt line for lighting purposes.

East Gallery, Raymond Shops.

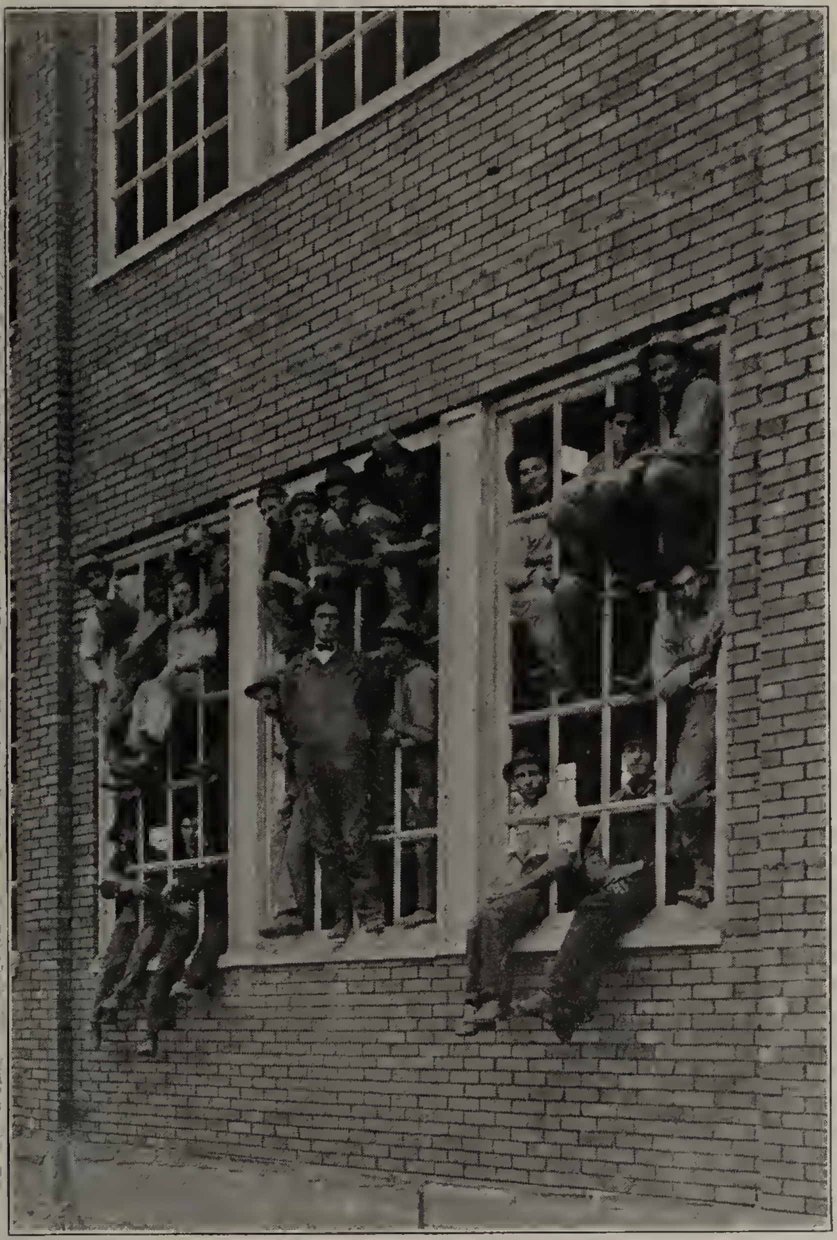
Pattern Shop, Raymond Shops.

### Economy in Operation.

Throughout the entire plant the construction and arrangement shows evidence of the most careful attention to detail and that no expense has been spared to perfect the equipment to meet all requirements of the modern-day machine manufacturing plant.

In the rear of the buildings is a net work of switching tracks for the large railway cars, numerous tracks of the industrial railway system, and large stores of iron and fuel and other raw materials, as well as piles of finished castings, flasks and other equipment.

Particular attention has been given to the matter of lighting. Not only is the utmost of daylight utilized through innumerable windows which occupy 75 per cent of the wall space but for dark days and for night operation a total of 28,600 candle power electric light is provided through the use of a large number of regenerative flaming arc electric lamps. At night these lamps make all parts of the plant as light as day.



Showing Strength of Window Frames.

As heretofore stated, the main machinery building has a floor space of 48,000 sq. ft. Adding to this the 12,750 sq. ft. of the foundry building and the area of the other buildings, we find that the entire plant has the immense total floor area of 72,850 sq. ft., which it is felt will be ample for all the requirements of the clay machinery business for many years to come.

### Raymond Methods.

One of the reasons for the Raymond success has been the excellence of the Raymond methods. Every department of the great business is conducted along the most modern lines and in the new plant with the improved facilities and additional space and with the perfected organization of high-class men, these methods have been improved upon and made as nearly perfect as possible.

One important feature developed is the up-to-date manner in which the needs and inquiries of customers are cared for. As an adjunct to the plant is the completely equipped and up-to-date testing and chemical laboratories in which the commercial value of clay submitted can be fully tested and expert reports made by the competent ceramic engineer in charge. The Raymond Co. has made it a point to employ only the best of expert help and supervision required in the various departments. The engineering and draughting departments have been perfected and are in charge of expert ceramo-mechanical engineers and these departments are fully prepared for the complete planning and designing of up-to-date clay-working plants.

Interior of Foundry.

The Raymond Offices, Dayton, O.

Under the banner of progress, which will always be flying at the mast head over the Raymond works, we can feel well assured of the continued prosperity and success of this great modern-day enterprise.

## THE HAWKEYE CONVENTION

The Iowa Brick & Tile Association is composed of an up-to-date, progressive group of men, who get to the front by boosting, and then make good.

They will hold their twenty-ninth annual convention at Boone, Iowa, Jan. 25th and 26th—headquarters, Hotel Holst. An enthusiastic crowd is expected to be present to enjoy the following interesting program, which has been carefully prepared:

### Wednesday Morning, 10 O'Clock.

Address of President J. L. Stevens, Boone, Ia.

President Stevens' address will tell of the commercial conditions existing in the clay trade in the older clay products using countries of Europe, as observed during his trip abroad in 1910.

A full discussion will be arranged.

Appointment of committees.

Intermission.

### Wednesday Afternoon, 2:00 O'Clock.

The afternoon session will be devoted to short papers and discussions on subjects covering the general topic.

Boosting the clay industry.

**"The Structure of Burned Clay."**

Showing that it is the best and cheapest construction available either for the smallest cottage or the most pretentious structure.

**"Good Roads."**

Showing that burned clay blocks offer the best solution of the good roads question, and that all clay products men should boost for brick paving.

**"Drainage."**

That clay pipe and tile are proven reliable, hence are the safest and best for all conditions.

Drain tile is first in the list of means for making soils fertile; the greatest producers of land values and satisfactory incomes from land investments.

Some practical testimony from prominent farmers and land owners.

**"Boosting Clay Products."**

Getting together.

Organized effort in "showing" the public.

Selling.

Organized boosting.

Reports of secretary and treasurer.

Reports of committees.

Election of officers.

### Entertainment.

Wednesday evening the convention and invited guests will be entertained at the Arie Opera House. Moving pictures of clay plants in operation will be shown; also lantern slides of many of Iowa's clay products plants will be shown with other entertaining and instructive features.

### Thursday Morning.

On closing the morning program, members will be conducted to the Iowa State College, by special train, for the purpose of inspecting the new buildings and equipment of the School of Ceramics. An interesting program will be provided by the special aid of Professors Beyer and Williams.

Headquarters will be at Hotel Holst, Boone, Iowa. Rooms $1.00 per day and up.

This convention should mark the opening of a new era in the clay industry and in the association spirit. All are asked to come prepared to discuss the various questions and advance their views.

## GO TO LOUISVILLE.

The Building Brick Association of America will hold its annual convention at Louisville, Ky., February 7th, making it possible for members to attend the National Convention which convenes at the same time and place. An interesting and profitable program has been arranged as follows:

**Tuesday, Feb. 7th, at 2:30 P. M.**

Reports of secretary and treasurer.

Report of Auditor.

Election of officers and directors.

New business.

**Publicity Meeting, Thursday, Feb. 9th, at 9:30 A. M.**

Among other subjects for discussion will be the following:

"The Comparative First Cost of a Brick House and One of Wood or Cement."

An actual test case has been conducted in Boston and plans, specifications and figures will be submitted. The results will interest and surprise you.

"An enormous New Market for Brick."

The elimination of wood in the outer walls alone of all new houses would increase the face brick business of the country over 150 per cent, and common brick business over 20 per cent. This statement is so startling as to seem incredible. But we have the proofs based on figures compiled for us by the F. W. Dodge Co., the well known authorities on building statistics. How to win this enormous market is the most vitally important question before the brickmaker today. It can be done. **It will be done if the brickmakers seriously undertake it.**

"The Brick Veneered House—It's Cheapness and Desirability," by W. E. Dunwody, of Macon, Ga. Mr. Dunwody is convinced from his investigations that, in the south, brick veneer is cheaper than wood and far better.

"Winning the Public for Brick," by John Andres, Secretary and Treasurer of the Standard Brick Manufacturing Company, of Evansville, Ind. Mr. Andres knows whereof he speaks; he is one of the most vigorous newspaper advertisers of brick in the country. He has made it pay. He will tell us all about it.

Full discussion of all papers is invited. If you have any subject relating to the increased sale of brick which you desire to have discussed, you are invited to communicate at once with the secretary, 1616 Flatiron building, New York.

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## PLEASING PROSPECTS.

The J. D. Fate Co., manufacturers of clayworking machinery, Portsmouth, O., are pleased with their past year's business, which shows a 20 per cent increase over that of 1909.

Among the recent orders received were an Imperial machine for the American Enameled Brick & Tile Co., of South River, N. J., which is the largest manufacturer of enamel brick in the United States, making the third combined machine they have in their plant from this company; also an order for an Imperial outfit for the Savannah Brick & Fuel Co., of Savannah, Ga., and an Imperial machine with vertical attachment for the Rockford Brick & Tile Co., of Rockford, Ohio, besides a large number of orders for machines to be shipped before the spring season opens.

Mr. J. D. Fate says:

We have just recived a copy of "Brick and Clay Record" and will say that it is a work of art and a very handsome journal.

# Brick and Terra Cotta

## By Owen B. Maginis

It was a long time ago that Bernard Pallisy proved to the world by effort and persistence that soft clay could be glazed, hardened, and become more than a plastic material—but how did he do it? He used heat, intense heat and in doing so, invented, unwillingly perhaps, terra cotta.

In other words, he proved that clay properly manipulated and burnt would have the same properties of and be equivalent to stone. The terra cotta of the Mexicans was not burnt, but, like adobe, was baked and lacked glazed, which can only be obtained by intense heat, and which leads us to the consideration of architectural terra cotta, as it is today.

Popular Type Chicago Apartment House of Face Brick with Terra Cotta Trim by North Western Terra Cotta Co.

Primarily terra cotta was but a decorative and useful material, adopted in the ancient world for such purposes as vases, etc., but today it is employed in so many ways, that its capabilities are unlimited.

Structurally considered as a building material, we find that it must be placed in compression on account of its frangibility, yet in this it plays many parts and in conjunction with steel and iron framing is of the utmost value to architects and architecture.

Terra cotta blocks are set in three directions, viz.: placed vertically, horizontally and diagonally and in arch work, partake of and possess all the qualities of brick and stone without the excessive labor of cutting and setting, always essential to these materials. Furthermore, in tile form, the possibilities are limited only by cost and requirements.

Avoiding the use of terra cotta in work as alluded to, we will take up its employment in geometrical details, such as arches, groins, etc., all of which are difficult, both to manufacture and set. The fundamental basis of all construction is, of course, the drawing and specifications which for this class of construction must be clear and very specific, showing distinctly to an exact scale, how the several constituent materials blend together to solidify the construction.

Small ⅛-inch or ¼-inch scale plans, elevations, sections, etc, should be furnished by the architect with ½-inch, ¾-inch or 1½-inch scale details of all molded work or curved, so that the manufacturers may lay out the work accurately and intelligently, without error or loss of time.

It is not always possible for the maker of terra cotta to strictly adhere to and follow out the architectural drawings and in many cases, changes have to be made to complete the construction, but this may all be done by the co-operation and mutual agreement of all interested.

There are, however, some good rules to follow which are worth **noting.**

1. If the dimensions on the details are vague, it should be the duty of the draftsman to visit the works and compare the steel frame erected with every measurement.

2. It is not wise to accept curved members on plans as accurate. It is better to make light wood or stiff paper or cardboard templets to fit the steel as set. This is imperative for finished work.

3. The matter of tying and anchoring to iron, steel or brick core, members or backing must be fully provided for by leaving holes, slots, etc., when molding.

4. The beds of all blocks, top, bottom and sides, should, as far as possible be in the direction of the thrust or pressure. In vertical or horizontal work, this is simple, on curved details difficult. In arch work, the compression center line is in the middle of the depth of the ring, so that all top and bottom beds must radiate to the center or centers, from which the curve or arch is struck. This applies to all arches from semi-circular to elliptic, and similarly to groins, the lines and intersections of which can only be obtained by geometrical development, in full sized details and with the extensive application of patterns and molds.

5. The matter of lettering and numbering every curved or ornamental block to correspond with the numbers, etc., on the shop drawings, must be done logically and systematically—using capital letters and Roman numerals for principal parts as bases, capitals, keystones, coigns, etc., and lower case letters, index figures and letters for minor parts.

This indexing, etc., is indispensable to the setter and should be accompanied by full classified lists with delivery invoice.

6. In arches, etc., special attention must be given to right and left hand details when listing, especially for work of the higher class, such as for churches, schools, etc, where the Gothic and Romanesque styles of architecture are used, the blocks will be varied and intricate. Much delay and loss of valuable time to masters and men is often caused by the absence or non-delivery of a single block, and it must be remembered that it is not always possible to employ a temporary dummy substitute of brick or wood. Of course this is impossible in arches or groins.

7. On the building under construction, if a large amount of terra cotta is to be introduced, the constant presence of a skilled setter is imperative. He must act in unison with the iron-worker and bricklayer foremen on the job, pick out all blocks, working from the listed and numbered plans and see them properly set, leveled and plumbed, test all centering and see same is the exact form required, ample in strength and in exact position, do all fitting and correct all errors and omissions, watch as to full anchoring and see that measurements are as shown, see to the full backing up with brickwork and so arrange that there shall be no possibility of cracking or disfigurement by unequal settlement or error in bonding. The difference between the thickness of the joints of the finished blocks and the rough brick backing is too frequently the cause of fractured blocks in fronts and other defects.

8. In setting arch or ground brick or blocks, the top or extradii surfaces may be covered with paper, oiled or treated to resist water. This will give a fairly clean soffit to the completed arches.

9. The necessity of using good mortar, preferably cement, is urged and the keeping of all arrises and blocks fair on faces and beds, to preserve the equipoise and thrust.

10. The insertion of all tie rods in all roof and floor beams and girders, and their presence, thoroughly screwed up and assured, before laying up any arch of brick or terra cotta, is necessary. It is to be regretted that this omission is so prevalent and should be made a "Criminal offense." Is not this a matter for the unions?

11. All voids liable to occur in fireproof buildings, such as terra cotta casings or jackets around steel-framed columns, must be filled up solid with bricks and brick bats and be fully slushed up solid with cement mortar, to form as it were an integral part of the steel core. Similarly with vacant spaces in girders. This simple job increases the strength and rigidity of the steel and protects the metal from injury by dampness, cold, heat or fire.

12. For all tile arches in floor or roofs, either laid in layers at right angles or diagonally to the beam or girder-webs, smooth center surfaces are necessary and are better covered with paper. Tile arches showing skew or herring-bone soffits, should invariably have the bonds reversed with each layer until the needed thickness of ring is built. It is advisable to have one ring layer set at right angles or square to the beam webs with the bonds broken. Never strike centers until it is assured that the mortar has entirely set.

From the foregoing, it might be inferred that what has been written here is solely for those in charge, but it pertains to all interested in building, where constructions made of clay products are involved. So on this account it is of equal value to artisan, producer and mechanic alike. Building is largely a co-operative business, each branch of which contributes its share to erecting structures which architecturally shall constitute a perfect whole, each individual doing his part to gain this end, and receiving in return the compensation and reward of a reputation for perfect fulfilment of building laws.

## TESTING CALIFORNIA CLAY.

A. L. Solon, a ceramic chemist, formerly of England, is making exhaustive tests of the clays at Niles, Cal., and the results have been very encouraging. These tests have been made through the enterprise of the California Pressed Brick Co., and through them it has been learned that the Niles clays are suitable for other purposes than making common brick. The results of the tests have shown that these clays are particularly valuable and from them could be manufactured wall and floor tile, sewer pipe, conduit, roofing tile, terra cotta and pottery. It is expected that at an early date the manufacture of glazed brick, mantel and floor tile will commence at that point.

A recent letter from Mr. Thress, superintendent of the California Pressed Brick Co., Niles, says that the common brick business in that section has not been very profitable —brick selling as low as $6.50 f. o. b. San Francisco, the lowest price ever known. This company has booked several large orders in San Francisco for a light burned paver to be used for building purposes, a number of architects having taken a fancy to this class of brick. The company is erecting a large building at the present time to be used for the manufacture of glazed brick and tile.

The Oakland Paving Brick Co., Decoto, Cal., has a large force of men at work installing machinery and expects to be manufacturing pavers before the end of the year.

Paye & Otby, formerly of Los Angeles, have leased the old Kern County Brick & Contract Co.'s plant, Bakersfield, Cal., and is running same full force. They have booked orders for 2,000,000 common brick.

## THE CLAY COLUMN.

Every brick man knows that some clays and shales will make a good stiff-mud brick, while others will make a brick of poor structure. The trouble in most cases is lamination, and it was in studying this problem of clayworking and trying to find out more about its causes that this line of investigation was begun.

That lamination is objectionable and a bugbear to the brickmaker in many sections of this country will be admitted by all. In paving brick it is especially objectionable because the loss in weight in the rattler tests is excessive, due to the cracking off of the loose outer hull which is present in laminated brick.

Various suggestions have been made as to the cause of lamination, but none seem to explain all phenomena observed. Various remedies have been suggested, but they do not seem to get at the root of the trouble. Bad cases have been cured, but the same cure will not apply to cases apparently similar. We know of cases where many remedies were tried without success, but where finally the laminations disappeared, while no special efforts were being made to effect a cure, so that the real remedy in that case is unknown. In another instance, at a plant troubled with lamination, the laminations disappeared for a short time and then reappeared. During all this time there apparently was no change either in the clay or in the manner of working.

Clay in the plastic condition, as it is after pugging, has the properties of a fluid of high viscosity, and the clay column from a stiff-mud machine may be considered as flowing. Therefore, consider for a moment the movement of several flowing bodies in nature, such as rivers and glaciers. Both are flowing streams, the force of gravity causing them to move forward. It is known that the flow of water in a stream is swiftest at the center of the surface, the friction between the water and land retarding the flow along the bottom and shores. The differences in the velocity of the surface may easily be observed by watching the motion of floating debris. Observations on glaciers show that these bodies also move in the manner of a fluid, although one that is very stiff and viscuous. It has been demonstrated by actual measurements that the rate of flow of a glacier is greater at the center of the surface than at the sides, and greater at the surface than at the bottom. The cause is friction, just as in the case of the river. Like the river and the glacier, the clay column is a flowing stream, driven forward by machinery. Therefore, we may say that the clay column moves in the manner of a very viscous fluid, the friction of the die around the column tending to retard the outer layers of clay, while the center will flow within the outer hull. To what extent this flow will take place depends on many varying conditions. Thus we may briefly state our theory of lamination—the difference in the rate of flow of the several parts of the clay column in the die.

This is easy enough to say and it certainly would be desirable and convenient if we could get a formula by which we could calculate the changes in the conditions necessary to remedy any case of lamination. But there are so many variable factors to be considered that much work will have to be done to determine the influence of each variable before we can hope to reach any general rule. The variable factors include the size of machine, the type of auger, length and taper of die, lubrication of die, rate of flow of clay column, physical properties of the clay, and the amount of water used in pugging. For every clay there will be a certain combination of conditions which will give the best quality of brick.—Paul E. Demmler.

## USES CONTRACT WORK SUCCESSFULLY.

Mr. P. H. Tiernan, a brick manufacturer at Macomb, Ill., has all work done at his plant by contract labor. In the morning, 15,000 brick are made, in the afternoon the same men set the brick and fill the clay bins. The soft mud process is used and a No. 1 Raymond machine and disintegrator are used in the manufacturing process.

The material used is one-third to one-half clay, the remainder being top soil. During the year an additional ten acres of land was purchased at a cost of $2,000 and $1,000 was spent in improvements. The capital stock will be increased and more kilns added. About eighteen to twenty employes are needed to produce an average of 12,000,000 brick per year. The men receive on an average $2.00 to $2.25 and the boys from 60 cents to $1.60 per day. Mr. A. E. Maguire is manager and superintendent.

## RAISING A FURNACE'S EFFICIENCY.

When using automatic stokers in order that coal, as it is fed downward from the hoppers onto the grates, may flow freely, it is an advantage to have it broken into practically even sized lumps so that it will not clog in the grates—and will burn freely and evenly.

In one of the power plants, coal is unloaded from gondola cars into a pit, from which it slides through chutes to a coal crusher.

This crusher can be set to grinding the coal to different grades of fineness, and as the fuel is discharged beneath the crusher it falls into the buckets of a conveyor which carries it vertically upwards from the boilers and there discharges it into the bunkers. From the overhead bunkers it slides by gravity through the chutes to the automatic stoker hoppers, and from thence is fed into the furnace.

## TO ASCERTAIN HEATING SURFACE.

To ascertain heating surface in tubular boilers multiply two-thirds of the circumference of boiler by length of boiler in inches and add to it the area of all the tubes.

## TO MEND BELTS.

To mend leather driving belts, melt a good glue and add to it one per cent of its weight of carbolic acid and the same quantity of strong vinegar.

## DEATH OF A PROMINENT BRICKMAKER.

Mr. R. W. Spence, founder and managing director of the Port Costa Brick Works, Port Costa, Cal., died suddenly at his residence in Berkeley from a stroke of apoplexy.

## ENGINE TROUBLES.

In talking with a practical engineer he said:

"One of the troubles in a power plant is the heating of bearings on engines, machinery and line shafting, and oftentimes the cause cannot readily be found. Sometimes the cap-nuts are not filled up evenly all around, with the result that one side of the cap cramps the shaft. This is a common occurrence, and if no attention is given it a serious accident may result.

"When a hot bearing occurs there is always a reason for it. It may be that the shafting is out of line or is not level, or there may be a lack of oil. On some lines of shafting there are bearings on which the caps have a large opening and in which is placed some waste.

"Before long the waste will fill up with dust, and when more oil is poured in, the dust will be worked into the bearing. This invariably results in a hot bearing. Then the engineer or oiler wonders why the bearing runs hot after having run along smoothly for perhaps a long time.

"Then again, in some bearings, grease is used in place of oil, and in time dust will settle on the grease. When the latter becomes worked into the bearing, the dust will also get in and cause heating. The remedy is to cover the grease.

"Change of temperature in an engine room may cause a hot bearing, for when a door or window is opened for a long time it will lower the temperature and cool the oil in the cups. Then they will feed slower or stop altogether. Were this to go unnoticed by the engineer a hot bearing will result.

"When a bearing gets hot, shut down if possible, then wash out the bearing with kerosene oil, and use graphite mixed with cylinder oil. In some cases the oil is at fault. It may not be adapted to the purpose for which it is used. It may be too light or heavy. If the oil is too light, then again the addition of flake graphite will help matters immensely, and prevent heated bearings."

## POOR ECONOMY.

It seems strange in this enlightened age, after seeing failures all around, that some will insist on buying cheap and inferior machinery We have known of people of this kind who have gone to manufacturers of first-class machinery and tried every means to induce them to sell a good machine for the price of a cheap one, and because they could not dictate terms, have gone elsewhere to save a few dollars, and the result has been disastrous, and then they blamed the other fellow.

## HOW TO RENEW COLOR OF BRICKS.

When red bricks of a fireplace get discolored with soot or have white spots on them, rub with a brick polish, the paste for which can be obtained at a brickyard or paintshop. If this paste cannot be found, rub the bricks with linseed oil, giving them all they will absorb. This treatment may be repeated several times if the bricks are much discolored. Where brick pavements are discolored with moss or green mold, scrub with a strong solution of household ammonia and water or with washing soda and hot water.

## MURRAY POWER PLANT INSTALLATION.

Pollenske, Schellak & Co., of Hastings, Neb., will have a Murray power plant in the new modern brick factory which they will build to replace the one destroyed by fire. The equipment will consist of a 300 h. p. Murray Corliss engine and a 300 h. p. Murray water-tube boiler.

## NEW PROCESS UTILIZED BY A PENNSYLVANIAN.

Henry Jaxtheimer, New Wilmington, Pa., recently visited Pittsburg in response to an inquiry from a government official in regard to a brick that he is manufacturing under a process, which he invented himself, and which is said to be way in advance of anything on the market. The brick is made from silica sand, and the process under which Mr. Jaxtheimer is making it is entirely different from ordinary brick manufacturing. He has been experimenting at his home in New Wilmington for months, having constructed a small kiln and burned the brick himself. He has experimented with a number of original processes and has succeeded in making a better brick than has as yet been put on the market, according to tests which were made at Cleveland, O., during the past few weeks.

The brick made by Mr. Jaxtheimer was tested at the Cleveland plant of the West Foundry Co., being used for 16 consecutive turns in the steel converter, the hardest test known for brick. It was tested together with the best brick that has been known for this purpose, and when the results of both tests were made known it was found that the old brick had diminished 3½ inches, while ½ inch was the total of the diminishing of the Jaxtheimer brick.

Mr. Jaxtheimer has a patent on the brick and believes that under his method he can manufacture a brick that will be entirely indestructible, and can be used indefinitely in steel converters.

A company for the manufacture of brick is being organized, known as the Pittsburg Silica Sand Co., capitalized at $100,000. The silica sand, which is used in the manufacture of the brick, is at Jackson Center on a farm owned by Mr. Jaxtheimer. The plant will be situated there.

The United States Government is interested in the manufacture of a better brick, and for this reason Mr. Jaxtheimer was called to Pittsburg to consult with a government official in regard to same.

The inventor of the new brick process is a graduate of the scientific department of Westminster college, and is also a graduate of the Case school of applied sciences in Cleveland, O. For the past two or three years he has been at work on experiments for the manufacture of a new brick from silica sand, and he believes that he has worked out a process that makes a better and more indestructible brick than has ever been placed on the market.

## TO TIGHTEN A TAP.

One often finds in fitting bolts to nuts that a nut has been tapped a little too small for the bolt that is meant to receive it. In such a case a large tap would be too large and the tap that was used in drilling the hole is not large enough. In a case of this sort the simplest and easiest method is to bend a small piece of tin about one of the rows of threads on the tap. When the tool is run through the hole the tin fits close to the thread, but forces the other cutting edges of the tap deeper into the thread of the nut and cuts it out a fraction deeper. In the same way a bolt may be cut down a fraction by fitting a piece of tin over one of the cutting edges of a die.

## NEWS ITEM.

Mr. W. W. Stephens, president of the Stephens-Adamson Mfg. Co., of Aurora, Ill., has returned from Europe. He has been spending some time in the study of the shops and methods of the larger manufacturing establishments of England, France and Germany.

# DRAIN TILE AND DRAINAGE

## TILE DRAINAGE IN DRY SEASON.

A subscriber of Martin County, Minn., writes: "I spent considerable money last year in the tile draining and would not naturally expect any benefits from this drainage during this extremely dry season; but am very agreeably surprised to get much better crops on the land that I tiled, than on the land of the same character that has not been tiled. I do not understand the philosophy of this and would be pleased to have an explanation through your valuable paper that has given us good advice on tile draining."

The rainfall usually contains ammonia equal to six to eight pounds of nitrogen per acre. The more of the water that comes to the land in rains and snows, that can be made to pass through the ground in a reasonable length of time, the better, as in passing through the soil to go out into the drains the ammonia is taken up by the soil and the land becomes better aerated and more friable, decomposition of organic matter is hastened, plant food of all kinds is liberated and the productive power of the land is increased in many other ways. Well constructed drains not only assist in mitigating floods and increasing the fertility of the soil, but render tillage more effective and by ample drainage some of the diseases that plants are subject to are prevented. Blight and rust are not as prevalent in soils that are well underdrained as in soil that is not underdrained.

Free water is very harmful to most plants if left to stagnate in the earth near the surface. Underdrains serve not only to dry the land in early spring, but indirectly to warm it, for if the water is removed the sun's heat warms the soil, instead of cooling it by evaporating the surplus water. If much of the free water in the springtime is carried through the soil by underdrains, then the superabundant water of midsummer will, in like manner, be removed. The rain in the spring is warmer than the soil, and if it percolates through the land to the drains, it parts with its heat and indirectly warms the soil, while the rain in midsummer is cooler than the soil, and in passing down to the drains cools the land.

Underdrains prevent the soil from becoming blocked or filled with fine particles of earth held in suspension; that is, they prevent puddling to some extent. Clayey soils shrink if they become dry, and swell when they are wet. Underdrains tend to prevent the swelling and closing of the pores which have been produced by drying. As soon as the air is admitted to the subsoil the dead roots of plants are decomposed and minute drainage channels are formed. One of the effects of drainage is to produce many small channels in the soil, which prevent the formation of large cracks that admit the air too freely and thereby cause excessive evaporation.

Underground draining opens up and airs out the soil. By this airing out, the soil is broken into minute particles, and thereby its power to hold moisture is greatly increased L. H. Bailey, an eminent authority on fertility and drainage, says that if a drained soil is capable of holding 30 per cent of moisture without giving off free water it will hold back during wet weather vast quantities of water which would pass off from undrained land that could hold but 15 per cent of moisture. It is a well known fact among those who have had considerable experience in under draining that fields thoroughly underdrained suffer far less from drought than undrained fields, other things being equal.

Even though there may be no serious difficulty with overflow water, it pays to underdrain, especially on land with an impervious subsoil, and the time to do this underdraining is during dry seasons. Because this is a dry year is no sign that it will be dry next year; and tile is much cheaper put in during dry seasons than when the ground is saturated with water. It is only by long experience and careful investigation that we can learn to appreciate the great value of underdrains. As Bailey says, underdrains promote fertility by opening up the soil to the oxidizing action of the air, and by making the soil more convenient for the little organisms that work in the soil to liberate plant food.—From The Farmer.

Showing Work of St. Paul Ditcher.

## IMPROVEMENTS MADE.

Moore & Hardin have made improvements at their brick yard at Vancouver to the value of $5,000 during the year.

## IMPORTANT DRAIN TILE MEETING.

An important meeting of the Northwestern Drain Tile Association was held at the Boody House, Toledo, O., Jan. 10, 1911.

After the opening preliminaries, a general discussion of the cement drain tile took place. Several members reported that cement tile was encroaching on their business and asked for the best method of fighting it. It was finally decided that the distribution of such literature as that given out by the Iowa association would be best.

After lunch, a general discussion of trade conditions was held, particularly referring to stock on hand, sales, prices, outlook for the coming year and kindred topics, after which a paper was read by Mr. Geo. R. Drennan, secretary-treasurer of the J. D. Fate Co., Plymouth, O. It was decided that the holding of four meetings a year be continued.

The next meeting will be held at the Boody House, Toledo, O., April 11, 1911.

The following officers were elected: Leo Childs, re-elected president; J. D. Rumsey, secretary, and E. A. Neff, treasurer. The executive committee consists of the officers, J. Miller and B. Rust.

## MASON CITY GREAT TILE CENTER.

The development and the production of clay products, although only recently brought to any prominent notice in Iowa, is only another marvel of the riches lurking in the black mud of that grand state.

The Farmers Co-operative Company has spent $175,000 to $185,000 on its new brick and tile plant at Mason City, which will be one of the largest and best plants of its kind in the world.

This will make nine plants for Mason City, which places this city to the fore as the greatest center in the world for the manufacture of drain tile. All the material for the production of these goods is just beneath the surface and the supply is practically limitless. Sixty-three carloads of these products will go out of Mason City each day with little danger of the plants being overstocked.

The tile, strange to say, proves equally good for the land in dry as well as wet seasons. In wet weather, it carries away the water, while in dry seasons, the air circulates through the tile, aerating the soil, making it more productive.

The first brick were made at Mason City in 1861, by Edson Gaylord, who still lives to see the marvelous results of his early experiments. Some of the brick made at that date was used in "The Brick School House," which was recently torn down. The brick after a quarter of a century's exposure to storm and tempest were found to show little signs of wear.

## TILE NOTES.

The Swift Terra Cotta Brick & Tile Co., of Ottawa, Ill., introduced an innovation in selling methods in the clay business when they had a special stock reducing sale at their plant, at which, in true department-store style, tiles selling regularly at $16.00 per thousand sold at $13.50, with corresponding reductions in other sizes. Purchasers were given chances on $100 worth of tile with each purchase.

The Columbia Tile Co. has been organized at Grafton, W. Va., with a capital stock of $150,000. The incorporators are Charles Durbin, H. Phillips, and Lee Bennett.

Operations have been commenced at the new plant of the Hinde Brick & Tile Co., Sandusky, Ohio, and steady work through the winter for 125 men is now insured. The big new winter kiln was started Saturday. In this large and modern plant work can be continued the year around. Already work has been started to enlarge the plant, and additional buildings will be erected as rapidly as possible. The company has a bright future.

Articles of incorporation have been filed with the Secretary of State for a charter for the Lawhead Brick & Tile Works of Loogootee, Ind. The capital stock is placed at $50,000, divided into 500 shares of $100 each, and the incorporators constitute the present members of the firm of Lawhead Brothers & Co., the well known manufacturers of drain tile and building brick of this city.

Two facts have been fully demonstrated by the Lawheads and the Loogootee Commercial Club during the past year. First, the market for all kinds of brick and tile is at the top notch and getting better. Second, Loogootee clay and shale will make as fine brick and tile as can be made anywhere and the only need is for ample factory facilities to utilize the deposits.

The officers are: President, Charles W. Lawhead; secretary-treasurer, J. W. Wood; directors, Will A. Lawhead, Roy B. Lawhead and J. W. Wood.

D. W. Wilkins and S. C. Armstrong, who have been investigating the feasibility of using oil burners in brick and tile making at the plant at Fairmont, Minn., have decided that the process is altogether too much of an experiment and coal will be used at the plant.

The proprietors of the new tile plant at Winnebago, Minn., kept open house New Year's Day. The big drying room was used for dancing, a band furnishing music.

The Minnesota Farmers' Brick & Tile Co., of Austin, Minn., has its entire stock of clay tile sold, both that which is made and that which is in course of manufacture.

The brick yard at Grantsburg, Wis., is under negotiation for a sale, and the new owners will convert it into a tile plant.

Negotiations have been culminated whereby several capitalists of Fairmont, Minn., have acquired a tract of seventy acres of land north of Glenville, said to be underlaid with an inexhaustible quantity of superior tile clay, and are organizing a company with a capital of $250,000 for the erection of an immense modern tile factory for the manufacture of tile upon a large scale. The headquarters of the company will be in Albert Lea. The industry will be of great benefit to the community and will be the means of increasing the value of the lands.

## IOWA DRAINAGE MEN TO MEET.

The committee of the Iowa State Drainage Association has decided to hold the next annual meeting in Mason City, Iowa, and has called this meeting for February 14 and 15. These meetings have heretofore been held at Fort Dodge, but as Mason City is now regarded as the center of the largest tile interests in the world, the meeting has come here. The meeting is expected to draw a large number of people who are interested in drainage work, which is now one of the important features in many of the counties of the state.

## COURT REVERSES DECISION.

A recent decision of the U. S. Circuit Court of Appeals reversed the decision of the lower court, which had awarded an injunction against the Williams Patent Crusher & Pulverizer Co., of St. Louis, Mo. The company feel proud of the decision and will institute proceedings against other infringements.

### PAVED STREETS GOOD AD FOR CITY.

Fort Smith has come to the front and claims the right to be classed among the most progressive cities in the world. Some years ago, after experiments that proved the superior durability of brick pavements, it was decreed that all her streets and alleys should be paved with brick and nothing else. For a number of years the work of permanently improving the city's thoroughfares has been pushed vigorously, until now she has nearly one hundred miles of smooth, clean, sanitary streets—more good paved streets than any city of her size anywhere. The splendid work is going on at the rate of a dozen miles or more per annum, and will be continued until every street and alley within and about the city is paved with brick. The taxpayers of Fort Smith are already feeling the benefits of this improvement in a material way, for good brick pavements, once laid, require little repair, and so there is only slight expense for maintenance. On this account it is believed that ultimately the city's tax rate will be lower than that of any city in her class where other paving materials of a perishable nature have been used, and are still being put down, entailing a constantly increasing expense for repairs and replacements. Fort Smith now has a population of 35,000, and is the center of a most fertile and resourceful farm region.

### NEW PAVING BRICK PLANT.

The Little Falls Fire Clay Company, with general offices, 324 Perkins Bldg., Tacoma, Wash., have secured a deposit of shale of superior quality for the manufacture of vitrified paving brick, and have constructed a plant comprising the most improved machinery for the purpose.

This plant is now completed with a daily capacity of 150,000 brick and at present is turning out a large quantity of building brick which are burned in the ordinary open kiln.

They are erecting a Youngren Gas Producer Continuous Kiln for the burning of paving brick so constructed as to furnish a uniformity of product evenly tempered to secure the very best consistency of vitrification and toughness of the brick.

With the superior quality of the raw material and the character of the plant in which they will be manufactured, the company feel justified in promising to furnish a paving brick equal in quality to the best made anywhere.

### IMPORTANT PAVING CENTER.

Cleveland is an important center of the paving brick industry, a number of large plants being located thereabout. During the past year nearly 20 miles of city streets have been paved and next year a larger mileage will be done. Cuyahoga county, with Cleveland as its county seat, has during the year just closed paved thirty-five miles of rural highways and has plans already formulated for thirty miles of rural pavements next year.

F. L. Jenkins has disposed of his interests in the Leon (Ia.) Brick & Cement Co., to A. M. Caster.

### ENGLISH SLAG PAVING BLOCKS.

(From Vice-Consul H. Nixon, Newcastle-on-Tyne.)

Scoria brick or slag paving blocks, have been manufactured in the Middlesborough district for many years and considerable quantities have been shipped to the United States since 1894. [A shipload was recently received at Washington, D. C.]

The bricks are manufactured from molten slag from the blast furnaces. The slag is drawn from the furnace into iron caldrons lined with fire brick. These are mounted on bogies, for transmission to the brick plant. The slag is poured from these caldrons into iron molds. These molds are made with a hinged bottom and are mounted on the circumference of a circular iron framework. This revolves and allows the molds to be filled separately. As the bricks solidify they are removed and placed in a beehive oven, where the residual heat anneals the whole of the brick.

### SAYS PRICES ARE ADVANCING.

A Peoria newspaper has the following comment to make on the increased price of paving brick:

"With the glad new year has come an increase in the already high cost of living in an advance in the price of paving brick. The city engineer and the local paving contractors at Peoria, Ill., received notice that brick which sold last year at $12.75 per thousand would, on and after January 1, 1911, be furnished at $14.50. This is an advance of $2.25 per 1,000 and means an additional cost of ten cents per square yard. The advance is due to the fact that the demand for paving brick is in excess of the output. Owing to the strike at the Purington factory in Galesburg last summer it ran far behind in its orders and increased the demand on the other factories.

### PAVING NOTE.

The Vallejo Brick & Tile Co., at San Francisco, is turning its attention again to producing paving brick, owing to the lull in sewer pipe trade.

A company at Elwood City, Pa., will engage in the manufacture of shale paving brick.

A company has been organized at Oskaloosa, Ia., with a capital stock of $30,000. The incorporators are F. E. Green, W. P. Hawkins and J. S. Henderson. The company will operate under the title of the Oskaloosa Paving Brick & Tile Co.

J. E. Meek & Co., brick manufacturers at Chillicothe, Mo., have had a prosperous year. They have a four-mold dry press in operation and are making arrangements to build a building and dryer and install stiff mud machinery for the manufacture of paving brick. They expect to have a capacity of 50,000 per day. They will also later on install tile machinery.

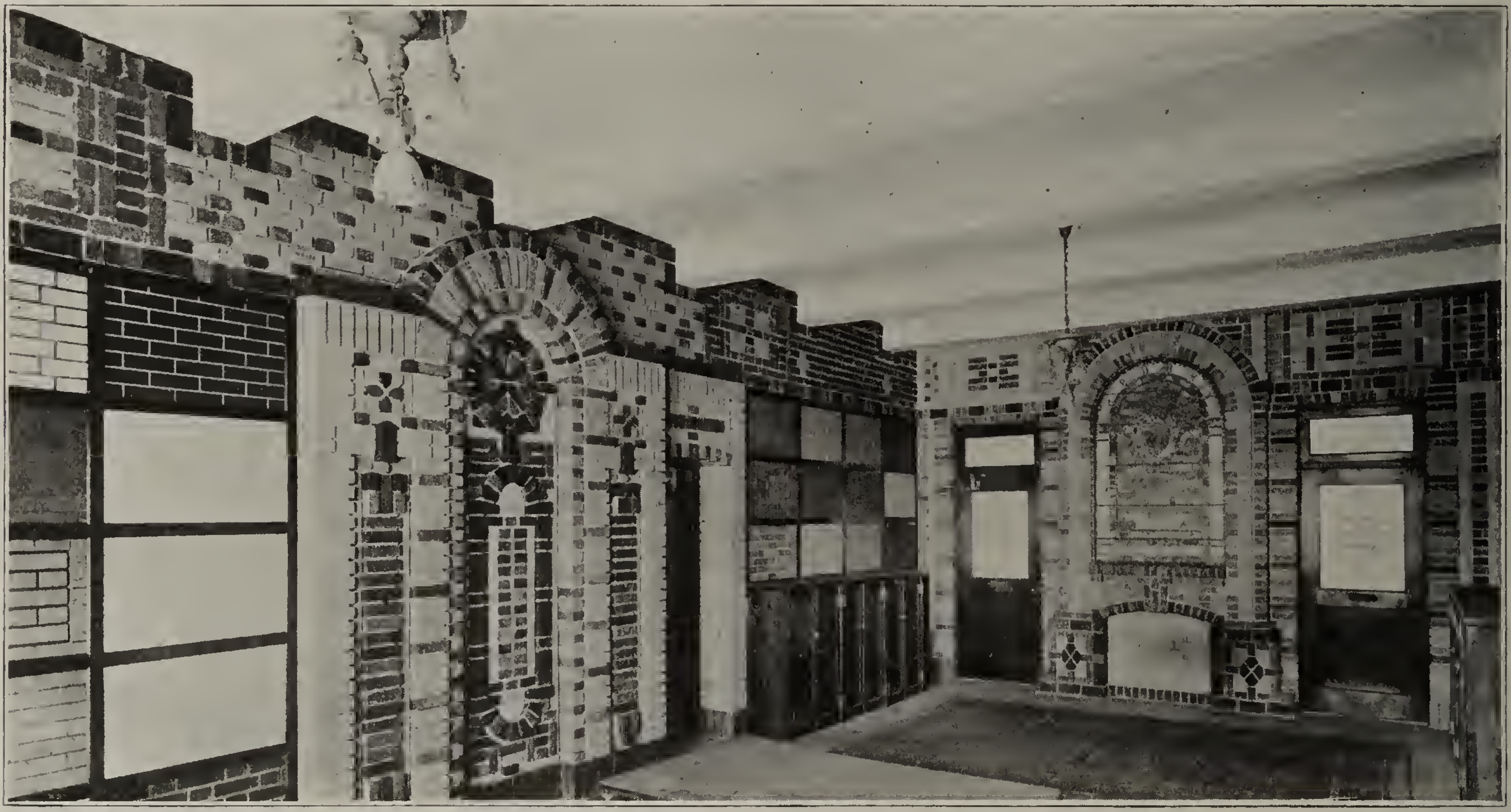
### NEW BRICK COMPANY.

Messrs. Parker, Cobb and Farrish, all members of the Beechwood Farm Co., Macon, Ga., were granted a charter to operate a brick yard under the name of The Farrish Brick Co., with a capital of $50,000.

## A BRICK SHOW OF THEIR OWN.

The firm of Fredenburg & Lounsbury, who have the reputation of being one of the largest distributers of front brick in the world, and of many other things, are sales agents for the Hydraulic-Press Brick Co., believe this to be the "BRICK AGE," and having faith in the greater architectural developments through the use of brick for facing purposes, are making new and more ambitious plans for their marketing efforts for 1911. It is said that their display of front brick at their offices, 381 Fourth avenue, New York city, are the most complete and attractive ever prepared by any brick selling agency.

An illustration showing sections of this exhibit appears on this page and it can be seen that this show of face brick is the most pretentious and elaborate yet attempted along this line. The arrangement is artistic and unique and the effects are divided about equally between the two general classifications of rough and smooth face brick.



Handsomest Brick Exhibit in New York City.

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## ACME BRICK CO., MARIETTA, O.

With a capacity of eight kilns, one of which will hold about 115,000 brick, the plant of the Acme Brick Co., of Marietta, O., is one of the busiest in that part of the Ohio Valley. Although the "home" consumption is very extensive, yet the firm is doing an excellent business shipping to other points, such as Chicago, Detroit and even into Canada.

Loam and shale are used in manufacturing the product here. This is procured from a bank, and the fall is obtained by shooting with dynamite. Three dump cars of the firm's own make are used in hauling the shale to the plant, where it is permitted to fall into two nine-foot dry pans of the American pattern. A belt conveyor lifts the ground material to the top of the shaft, where it again falls through a Dunlap screen and another of the firm's own creation. This latter screen was made from plans prepared by an employe of the firm, and its general use in other plants is possible at an early date.

The brick machine is a No. 1 Giant of American make and has a capacity of 25,000 per day. The product of the plant consists of face and building brick and paving blocks. An E. M. Freese cutting-table has been in use since the plant was started. The Eagle repress is also American make.

The dryers have a capacity of 400 cars, and waste heat from the kilns is used in the drying tunnels. This is secured by the operation of an American Blower Co.'s fan. The heat in the dryers has not been tested, according to report.

Gas is used as a fuel in the kilns, and this is found to be cheaper than coal. A very reasonable price for gas has been secured as follows: For the first 150,000 cubic feet of gas 18 cents is charged. For the second 150,000 cubic feet there is a charge of 13 cents and for all over this amount, eight cents per thousand cubic feet is charged.

Among the representatives of this company are the following: Jenkins & Reynolds, Chicago, Ill.; F. B. Stevens, Detroit, Mich.; Toledo Builder Supply Co., Toledo, O.; Martin Brick Co., Pittsburgh, Pa.; R. L. Watson, Columbus, O., and also representatives in Canada.

W. H. H. Jett, one of the most widely known business men in the Marietta district is president, treasurer and general manager of this company.

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## GOOD YEAR'S BUSINESS.

The W. M. Fox Tile Co. at Obion, Tenn., has sold almost the entire yearly output. A new kiln and a Swift hot floor dryer are in prospect to prepare for the "bumper" year, which the company is looking forward to. Gas is used to run the water pump.

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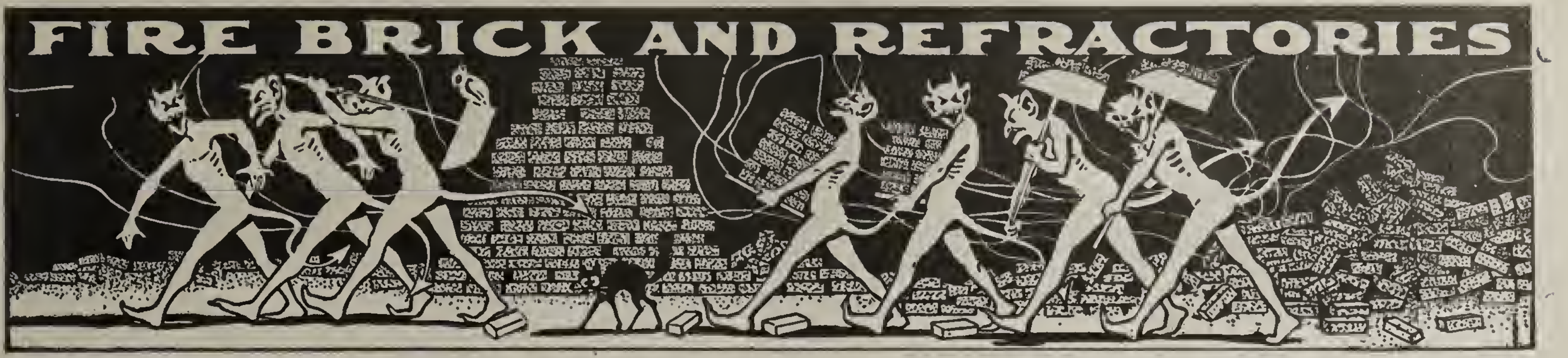
## FACTORY ADDITION.

The Black Hills Pressed Brick Co., has added extensive improvements to its plant west of Hangman's, Ill. New boilers have been installed and a new shed and buildings are being built. The quality of brick turned out by this company is considered to be of the best and in great demand. The management is kept busy filling orders as fast as they come in.

# FIRE BRICK AND REFRACTORIES



### EVIDENCE OF PROGRESS.

The Chicago Retort & Fire Brick Company, 837 Commercial National Bank Building, Chicago, have increased their capital stock to $250,000, and contracts have been let for extensive additions to their Ottawa plant.

They expect to have the new work completed prior to May 1, 1911, when they will close their Chicago plant for manufacturing purposes, and maintain it as a distributing yard for less than carload orders.

This company's success may be noted from the fact that it has quadrupled its business in the last seven years. Its reputation is assured and was built on the meretorious quality of the goods produced, the clay used being A1 for the production of a perfect fire brick. Added to this, high class workmanship with a finely equipped factory, and you have the reasons why Ajax fire brick are considered standard.

As in the past, however, the company is not satisfied to rest on its successes, but are planning further improvements and enlargements.

### BUILDS HIGH FENCE.

The Harbison-Walker Brick Co. is building a high board fence around its plants at Mt. Union, Pa. The fence will be nearly a mile long and eight feet or more high. It is to be a closed tight affair and it is necessary to go to the gates to get into the works. The purpose is to give the company officials better control of the workers and the works.

### INCREASES CAPITAL STOCK.

Papers have been filed by the United States Metal Door & Trim Co., of New York, increasing the capital stock from the nominal $1,000 named in the certificate to $2,000,000 7 per cent preferred and $6,000,000 common stock. The company will manufacture fireproof building material and parts.

### BRICK EXHIBIT.

At the Western Land & Products exhibit to be held in Omaha the last of January the Western Fire Clay & Tile Co., of Murray, Utah, will have an extensive exhibit of their fire clay products.

### ONE OF THE LARGEST.

The Standard Fire Brick Co.'s plant, at Pueblo, Colo., is one of the largest of its kind in the world.

### TERRA COTTA COMPANY GETS MORE LAND.

The Northwestern Terra Cotta Co. has closed the purchase of three more pieces of land near its recent purchases in Paulina street, near Diversey boulevard, Chicago. They acquired 175x124 feet in Paulina street, 531 feet south of Diversey; 75x124 feet in Paulina, 431 feet south of Diversey; also 50x124 feet 706 feet south of Diversey; and 25x124 feet south of Diversey. All the considerations were nominal and the purchases were said to be made for future probable requirements.

### NORTHWESTERN TERRA COTTA CO. SUSTAINS SERIOUS FIRE LOSS.

On the night of Dec. 12 a serious fire occured at the plant of the Northwestern Terra Cotta Co., Chicago.

A night watchman discovered the fire in the elevator shafts at 8:45, but turned in a "still" over the telephone instead of pulling a box. When engines arrived five minutes later the elevator shafts and an explosion had converted the place into a furnace.

Fifteen minutes later the south wall fell and the battalion chief and company narrowly escaped destruction.

In spite of lack of water, absence of fire walls, and a series of explosions which scattered the flames through the dry old structure, a large part of the plant was saved. Although it seemed impossible to save any of the plant when the firemen first arrived it was confined to one building, 300 by 75 ft. in area, and no adjoining structures were injured. The loss was estimated by officials of the company at $150,000, all covered by insurance. No one was injured, and the most serious consequence will be the throwing out of work of the men. The plant occupies some 20 acres in the vicinity of Wrightwood and Clybourn avenues, and is bisected by the Evanston line of the Northwestern railroad. The fire broke out in the "pressing room" in an old four-story brick structure.

Mr. Fritz Wagner, vice-president and treasurer of the terra cotta company, was at a banquet of the Builders' club at the La Salle Hotel, when he heard of the fire. He jumped into an auto without waiting to get his overcoat and hurried to the blaze. The parts destroyed, he said, were the pressing, finishing, fitting, molding, and drafting departments. He said that the plant employs from 1,000 to 1,500 men, of whom about 350 will be thrown out of work. The company is capitalized at $600,000. He said that nothing explosive was stored in the building, and that the explosions which had occurred must have been due to gas from broken mains.

### CONTEMPLATES LOCATING IN INDIANA.

The Marion Commercial Club, of Marion, Indiana, has had the matter up with the Scott-Madden Iron Works Co. to locate its new plant at Marion. The firm manufactures brick and tile machinery, and a new plant is contemplated because of an increase in business. This company now operates two works, one at Rushville, Indiana, another at Keokuk, Iowa. The concern looks with considerable favor upon the offer from the Marion Commercial Club. It is said the locating of the new plant at Marion is practically assured.

### A CHICAGO ENTERPRISE.

A new company has been incorporated under the title of The Midland Terra Cotta Co., 172 Washington St., Chicago, for the purpose of engaging in the manufacture of architectural terra cotta.

The company has a capital of $25,000. The officers are Wm. G. Kreig, president; Walter C. Primley, secretary. They will erect a plant at 16th St. and West 54th Ave., Chicago, details of which have not yet been completed.

# SEWER PIPE NEWS

## WESTERN PRICE LIST.

We recently published the complete price list adopted by eastern manufacturers of vitrified sewer pipe and we herewith append what is known as the Western price list, slightly varying from the list used in the East. This price list applies to both standard and double strength pipe, the net prices being determined by discounts.

What is known to the trade as double strength pipe is made only in sizes 12 in. and larger. It differs from the standard pipe only in being thicker and proportionately stronger. The thickness of the shell of double strength pipe must be not less than 1-12th of its interior diameter.

The following price list is used by manufacturers located West of the Illinois-Indiana state line, the division line practically following the Illinois Central R. R. from Freeport, Ill., to New Orleans, La., and all of Wisconsin is included in the Western territory.

WESTERN PRICE LIST.

| Inside Diameter, Inches. | Straight Pipe, Per Foot. | Curves & Elbows, Each. | T & Y Junctions 2 ft. long, each. | T & Y Junctions 2½ ft. long, each. | Branches, 3 feet long. | Traps, all Styles, each. | Double Junctions and Breeches each. | Increasers, Decreasers and Slants, each. |
|---|---|---|---|---|---|---|---|---|
| 3 | $0.15 | $ 0.50 | $ 0.60 | | | $1.70 | $0.90 | $ 0.45 |
| 4 | .20 | .60 | .80 | | | 2.10 | 1.20 | .60 |
| 5 | .25 | .75 | 1.00 | | | 2.50 | 1.50 | .75 |
| 6 | .30 | 1.00 | 1.20 | | | 2.90 | 1.80 | .90 |
| 7 | .35 | 1.25 | 1.40 | | | 3.50 | 2.10 | 1.05 |
| 8 | .45 | 1.65 | 1.80 | $ 2.03 | | 4.50 | 2.70 | 1.35 |
| 9 | .50 | 1.75 | 2.00 | 2.25 | | 5.00 | 3.00 | 1.50 |
| 10 | .60 | 2.10 | 2.40 | 2.70 | | 6.00 | 3.60 | 1.80 |
| 12 | .75 | 2.75 | 3.00 | 3.38 | | 8.50 | 4.50 | 2.25 |
| 14 | .90 | 3.25 | 3.60 | 4.05 | | Made with and without hand holes. | Sizes over 12" made only to order. | 2.70 |
| 15 | 1.00 | 3.75 | 4.00 | 4.50 | | | | 3.00 |
| 16 | 1.20 | 4.25 | 4.80 | 5.40 | | | | 3.60 |
| 18 | 1.50 | 4.75 | 6.00 | 6.75 | | | | 4.50 |
| 20 | 1.75 | 5.75 | 7.00 | 7.88 | | | | 5.25 |
| 21 | 2.00 | 6.75 | 8.00 | 9.00 | | | | 6.00 |
| 22 | 2.10 | 7.00 | 8.40 | 9.45 | | | | 6.30 |
| 24 | 2.50 | 8.00 | 10.00 | 11.25 | | | | 7.50 |
| 27 | 3.25 | 16.25 | | | $16.25 | | | 16.25 |
| 28 | 3.50 | 17.50 | | | 17.50 | lengths. | | 17.50 |
| 30 | 4.00 | 20.00 | | | 20.00 | only in 3 foot | | 20.00 |
| 33 | 5.00 | 25.00 | | | 25.00 | fittings made | | 25.00 |
| 36 | 6.00 | 30.00 | | | 30.00 | 27 to 42" and | | 30.00 |
| 42 | 8.50 | 42.50 | | | 42.50 | | | 42.50 |

## CANNELTON SEWER PIPE.

The Cannelton (Ind.) Sewer Pipe Co. is very well satisfied with the result of a recent test made by the sewer convention at Louisville, Ky., in which its sewer pipe came out with flying colors. One specimen of the Cannelton pipe submitted withstood a pressure of 7,355 lbs.; its nearest competitor failing at 5,270 lbs.

The company draws the conclusion that the test proves beyond a doubt the high character of its fire-clay pipe, and also disproves the impression, which has heretofore prevailed, that light-colored pipe are not as strong as those of dark color.

## TO ENLARGE PLANT.

The Bird-Pratt Brick, Tile & Sewer Pipe Mfg. Co., expect to build a large addition to their plant at Roseville, Ill.

## GEORGIA PLANT ENLARGING.

Owing to the growing demand for sanitation in all cities, the sewer pipe business seems to be enjoying an era of prosperity as evidenced by the enlargement and growth of such institutions in all parts of the country.

The Standard Sewer Pipe Co., one of Rome, Ga.'s, new and successful industries, has decided to enlarge its plant and make an additional expenditure of $30,000. Chas. C. Harper, who has been manager of the Graves-Harper Coal Co. for the past 15 years, will take charge of the sewer pipe plant.

The Standard Co. recently received a contract for 9 miles of sewer pipe at Dalton, Ga., and taking into consideration the constant growth of Rome and the fine prospects of the city, they have decided that enlargement was necessary to keep up with their orders. The improvements will give the Standard Co. a thoroughly modern plant with a large capacity, and they are turning out some of the best sewer pipe made in the South.

Exhibit of H. B. Milliken & Co., at Kentucky State Fair.

## SEWER PIPE NOTE.

Owing to scarcity of money to take care of new contracts, sewer work in San Francisco is less active at present than usual. However, conditions indicate an even busier year than just closed.

The Blackmer & Post Pipe Co., St. Louis, say that the volume of trade this year in sewer pipe and kindred products has been good. The prices have been low but have been helped some by the fact that the coal miners' strike resulted in curtailing the product to a limited extent in places. The outlook for next year seems to be bright, owing to the fact that we have harvested an enormous crop, which will be sold at good prices, and the indications are that money will be sufficiently easy so that municipal bonds can be sold at fair prices, thus enabling the smaller towns to put in systems of sewers.

The Standard Sewer Pipe & Terra Cotta Co., of San Francisco, Calif., has taken over the plant of the California Brick & Clay Mfg. Co., at Antioch, Calif., and will make repairs and add improvements.

# POTTERY NEWS

East Liverpool, O., Jan. 7.—The New Year started off in a most satisfactory manner with the manufacturing potters of the United States, and the buyers who are coming into the market from all parts of the country are placing heavier orders than they did last January. This tells two stories: stocks are low and the buyers want to "cover" as soon as possible, and the large buying insures the potteries a continued run throughout the first six months of 1911.

At Baltimore a new plant has been built by the Edwin Bennett Pottery Co., and at Coshocton the Pope-Gosser China Co. has been compelled to increase its capacity, adding in December and January 15,000 sq. ft. of floor space. The Perrysville Pottery Co., of Perrysville, O., has increased its manufacturing departments, and the Yellow Rock Pottery Co., of Philadelphia, has just announced its intention to build a six-kiln plant at once, and to have it in operation by May 1.

These little straws tell which way the trade winds are blowing in the domestic pottery business.

Besides this, the Warwick China Co., of Wheeling, W. Va., has announced its intention to commence the manufacture of vitreous hotel china and regular vitreous dinner ware this year, and it is possible the firm will be in a position to show complete new shapes in this line by June. Charles E. Jackson, of Syracuse, N. Y., has assumed the management of the Warwick, and he will have charge of the new vitreous china department, the body being after his own receipt for mixes. The Warwick will be the first company west of the Alleghany mountains to make the high grade china body.

Announcement has been made that Harrold H. Knowles, superintendent of the Buckeye China Co., has been made assistant general manager of the three plants controlled by the Knowles, Taylor & Knowles Pottery Co., of East Liverpool. William Cook has left this concern to take charge of the plants of the Standard Pottery Co.

Records for the importation of china clay for 1910 surpass all previous years, showing an increase of 5,000 tons over 1909. The total amount of china clay received at the port of Portland, Maine, from the regular line of clay steamers from Fowey, England, and the amount brought by the regular trans-Atlantic liners for the year 1910, is 37,449 tons, as against 32,202 tons for the year 1909.

The figures show that the total value of the china clay brought into that port during 1910 is $236,911, and that the amount realized by the United States Government for duty on the china clay is $93,622.50. In 1909 the total value of the china clay imported was $197,131, while the duty collected on the clay by the Government amounted to $80,507.83.

Customs officials say that Portland is one of the most important ports for the importation of china clay in this country and that more clay has been landed there than in Boston. Portland is one of the few ports with a regular all the year around line of china clay steamers, and from indications the importation of china clay will increase annually.

The following table shows the amount of china clay landed there for each month and the value:

| | Tons. | Value. |
|---|---|---|
| January | 2,148 | $ 15,095.00 |
| February | 5,133 | 30,794.00 |
| March | 4,494 | 28,230.00 |
| April | 3,848 | 23,934.00 |
| May—No receipts. | | |
| June | 6,945 | 41,720.00 |
| July | 1,871 | 11,625.00 |
| August | 2,203 | 13,733.00 |
| September | 1,398 | 6,856.00 |
| October | 2,115 | 14,905.00 |
| November | 3,855 | 25,775.00 |
| December | 3,438 | 24,244.00 |
| Totals | 37,449 | $236,911.00 |
| Duty | | 93,622.50 |

Totals for 1909: 32,202 tons; $197,131 value; $80,507.83 duty.

Nearly all the china clay brought to this port is conveyed across the Atlantic by the regular line of clay steamers from Fowey, England, but often the Transatlantic steamers bring over small amounts of clay.

M. P. Neilsen, a Seattle, Wash., sculptor, is interesting himself in valuable clay deposits there, intending to utilize the material for molds. Mr. Neilsen is planning to equip a plant for glazing pottery.

Members of the executive board of the National Brotherhood of Operative Potters have been in session here upon a special call issued by President T. J. Duffy of this city, to consider questions of moment to the organization. These included the conditions pertaining to the non-union shops and the sanitary ware trade in Lambertsville, N. J., New Castle, Pa., and Avington, Ill. The brotherhood has been fighting these shops.

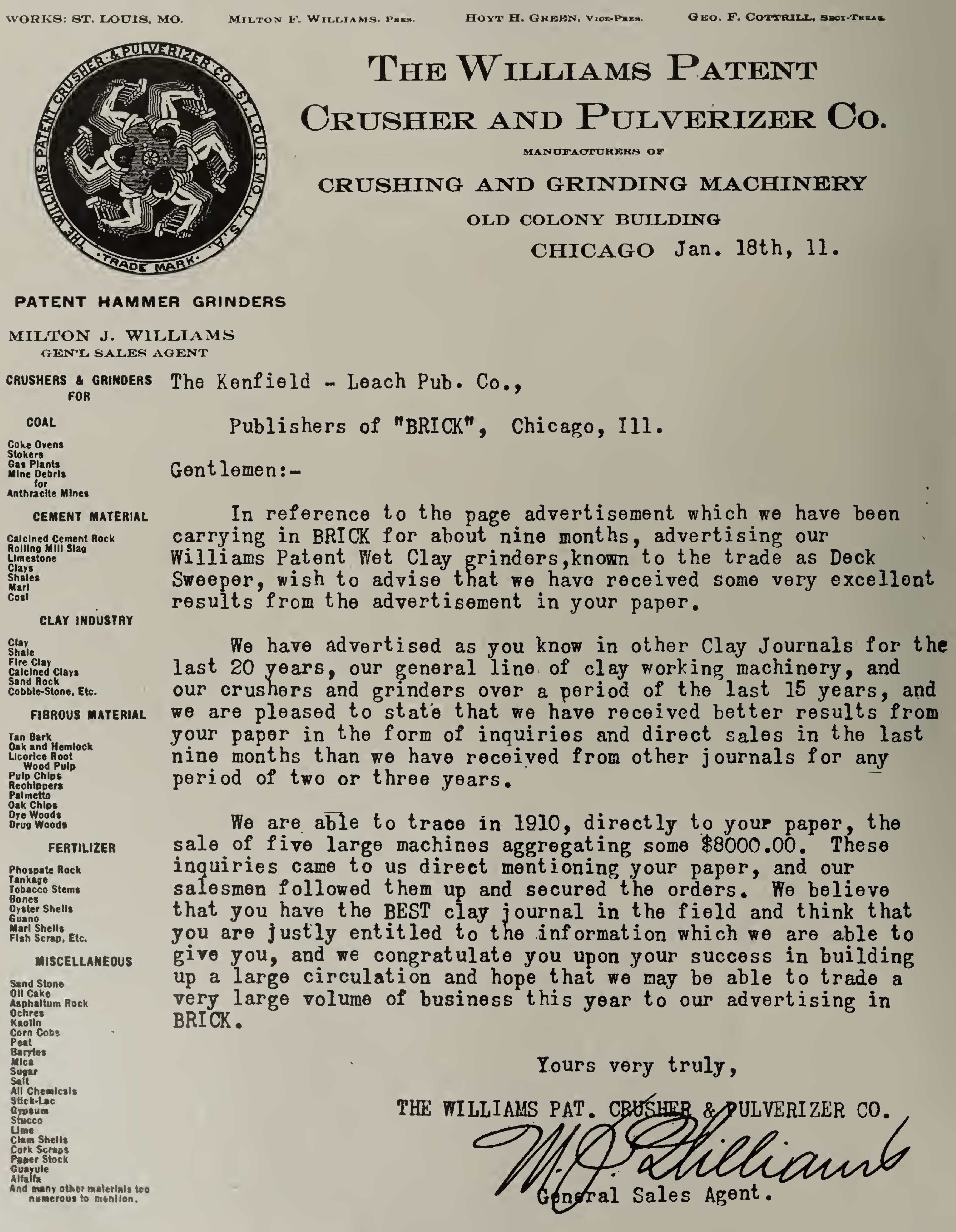
If the plans of William Wade, who recently came to Los Angeles from London, England, are concluded, Los Angeles will soon be exporting vast cargoes of china clay to northern ports. Mr. Wade recently secured control of a large deposit of the clay near Los Angeles. He was there to look into the price of charters for shipping the clay north. The clay is extensively used in paper mills and tile works.

The Wheeling Sanitary Manufacturing Co. has just completed the erection of four kilns at the Riverside plant, and it is related that the fifth new kiln will be started ere the month ends. Since this plant was taken over by new interests it has been working to the limit of former capacity, and additional kilns were an absolute necessity.

The Harker Pottery Co., of East Liverpool, has opened negotiations for the purchasing of the plant of the National China Co., adjoining, and the deal is expected to be completed ere the month ends. The National Co. several months ago bought the plant of the Salineville China Co., at Salineville, O., and when the sale of the plant in this city is completed, all business will be transferred to the Salineville property. The plant concerned in the sale here was first started by Homer Laughlin, from which the present Homer Laughlin China Co. grew. Mr. Laughlin is now a resident of Los Angeles, Cal., and is an extensive property owner there. Fact is, Mr. Laughlin built the first brick skyscraper in Los Angeles.

William H. Phillips, of the Smith-Phillips China Co., recently contributed an article to the Photo-Era upon "A Camera Trip Through Spain." It was accompanied by eighteen illustrations, scenes taken during a tour of Spain by the writer.

# "PROOF OF THE PUDDING"



WORKS: ST. LOUIS, MO. MILTON F. WILLIAMS, PRES. HOYT H. GREEN, VICE-PRES. GEO. F. COTTRILL, SECY-TREAS.

THE WILLIAMS PATENT
CRUSHER AND PULVERIZER CO.
MANUFACTURERS OF
CRUSHING AND GRINDING MACHINERY
OLD COLONY BUILDING
CHICAGO

Jan. 18th, 11.

**PATENT HAMMER GRINDERS**

MILTON J. WILLIAMS
GEN'L SALES AGENT

**CRUSHERS & GRINDERS FOR**

**COAL**
- Coke Ovens
- Stokers
- Gas Plants
- Mine Debris for Anthracite Mines

**CEMENT MATERIAL**
- Calcined Cement Rock
- Rolling Mill Slag
- Limestone
- Clays
- Shales
- Marl
- Coal

**CLAY INDUSTRY**
- Clay
- Shale
- Fire Clay
- Calcined Clays
- Sand Rock
- Cobble-Stone, Etc.

**FIBROUS MATERIAL**
- Tan Bark
- Oak and Hemlock
- Licorice Root
- Wood Pulp
- Pulp Chips
- Rechippers
- Palmetto
- Oak Chips
- Dye Woods
- Drug Woods

**FERTILIZER**
- Phospate Rock
- Tankage
- Tobacco Stems
- Bones
- Oyster Shells
- Guano
- Marl Shells
- Fish Scrap, Etc.

**MISCELLANEOUS**
- Sand Stone
- Oil Cake
- Asphaltum Rock
- Ochres
- Kaolin
- Corn Cobs
- Peat
- Barytes
- Mica
- Sugar
- Salt
- All Chemicals
- Stick-Lac
- Gypsum
- Stucco
- Lime
- Clam Shells
- Cork Scraps
- Paper Stock
- Guayule
- Alfalfa
- And many other materials too numerous to mention.

The Kenfield - Leach Pub. Co.,

Publishers of "BRICK", Chicago, Ill.

Gentlemen:-

In reference to the page advertisement which we have been carrying in BRICK for about nine months, advertising our Williams Patent Wet Clay grinders,known to the trade as Deck Sweeper, wish to advise that we have received some very excellent results from the advertisement in your paper.

We have advertised as you know in other Clay Journals for the last 20 years, our general line of clay working machinery, and our crushers and grinders over a period of the last 15 years, and we are pleased to state that we have received better results from your paper in the form of inquiries and direct sales in the last nine months than we have received from other journals for any period of two or three years.

We are able to trace in 1910, directly to your paper, the sale of five large machines aggregating some $8000.00. These inquiries came to us direct mentioning your paper, and our salesmen followed them up and secured the orders. We believe that you have the BEST clay journal in the field and think that you are justly entitled to the information which we are able to give you, and we congratulate you upon your success in building up a large circulation and hope that we may be able to trade a very large volume of business this year to our advertising in BRICK.

Yours very truly,

THE WILLIAMS PAT. CRUSHER & PULVERIZER CO.

M. J. Williams

General Sales Agent.

## THE "AMERICAN" REMODELS MANY PLANTS.

The American Clay Machinery Co., Willoughby, Ohio, have recently secured contracts for changing and remodeling the grinding and mixing department of a number of plants throughout the country.

They are making a complete change in the plant of the Atlas Brick Co., of El Paso, Texas, installing their combination wet and dry grinding machinery, instead of the machinery formerly used in that factory.

They have also secured the order for placing the grinding and mixing machines in the plant of the Watertown Pressed Brick Co., Watertown, S. D., and have secured an order for changing over the grinding and mixing machinery formerly installed in the factory of the Manitoba Pressed Brick Co., of Winnipeg, Manitoba, Canada.

They have completed the installation of presses and mixing machinery for the Sioux Falls Pressed Brick Co., Sioux Falls, S. D., with excellent results.

Interior of Factory, Chicago Mine and Mill Supply Co.

## STILL THEY COME.

One of the handsomest calendars we have received was that issued by the S. B. Dodds Face Brick Co., 1218 Chestnut street, Philadelphia, Pa., a picture of a "lady fair" and a thermometer attached to the calendar makes it highly attractive as well as a useful desk accessory. This company is one of the largest manufacturers of face brick in the world, and maintain offices in New York, Baltimore, Washington and Philadelphia.

The Malakoff Brick Co., Fort Worth, Tex., remembered their friends with a "dog-on" unique calendar. The view of a countless number of dogs crowding an amphitheatre, watching a game of baseball played by a pack of dogs, and an excited crowd of "fans" indulging in the usual excitement indicating a close game, occupies a prominent place on the calendar.

The friends of the United Brick Co., Greensburg, Pa., were favored with a calendar on which appears a mountain scene of exceptional beauty.

The calendar sent us by the Stevenson Co., manufacturers of brick, sewer pipe and tile machinery at Wellsville, O., is a most useful office accessory, being a substantial perpetual drop-calendar, so constructed that it may be used year after year. The figures are clear and bold, making it a delight to the busy man.

The calendar received from the Blackmer & Post Co., of generous proportions, the center of attraction being manufacturers of vitrified sewer pipe, St. Louis, Mo., is a view of their immense plant with 25 kilns in view.

"Ready for business" is the slogan of the Coffeyville (Kas.) Shale Brick Co. as set forth on the handsome calendar they are sending out.

## LARGE DEALERS IN PAVER AND TRANSMISSION SUPPLIES.

Among the prominent exhibitors at the convention of the Middle-West Clay Workers, at the Palmer House, Chicago, the Chicago Mine & Mill Supply Co., with head quarters at 42 Michigan Ave., Chicago, were to be seen. This company was organized July 1, 1909, by Messrs. Chas. Ambrose and H. L. Spalding.

Mr. Ambrose received a thorough technical education and has devoted eighteen years to the belting, supply and machinery business.

He is the inventor of a number of time and money-saving devices for the engine room, taking a great interest in fuel economy, and power transmission problems, and is an authority on power problems.

Mr. Spalding first took up the selling end of the game, where his genial disposition, tact and forcefulness in handling men and thorough knowledge on all power problems have made him one of the most successful men in the business.

These two men, realizing the opportunity for a live organization, operating along modern lines, and doing business in an honest, open, and above-board manner, organized the Chicago Mine & Mill Supply Co., associated with them some of the best salesmen they could hire, and have been meeting with deserved success. The view of their store shown on this page shows goods used by clay manufacturers.

## INSTALLATION OF PENFIELD SETTING DEVICE.

An officer of the Illinois Brick Company reports that the Penfield setting device has been installed at all the company's yards and is in successful operation. The company is said to be deriving large benefits from the speed and economies made possible by the change from manual to machine methods of placing brick in the kilns.

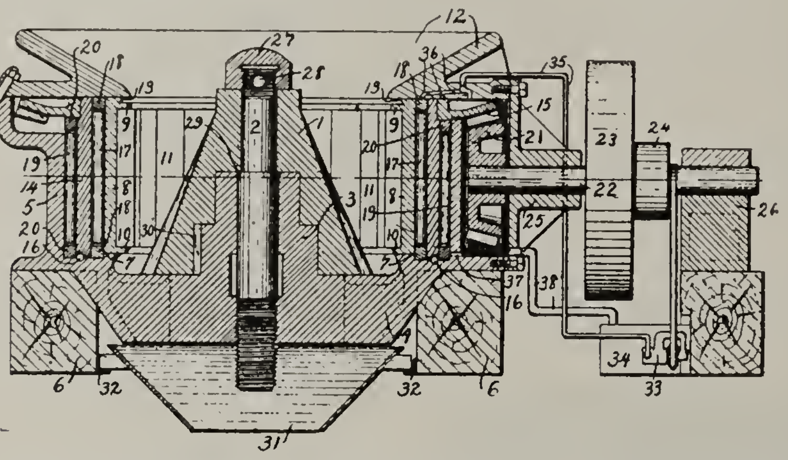
## CONCRETE BUILDING DESTROYED BY FIRE.

Fire destroyed the Red Snapper Sauce Company's large concrete factory at Centerville, Miss., with $25,000 worth of manufactured goods. The building and machinery, valued at $12,000, were a total loss. The plant carried $10,000 insurance.

## NEW INVENTIONS THAT ARE OF INTEREST TO THE CLAY MANUFACTURER.

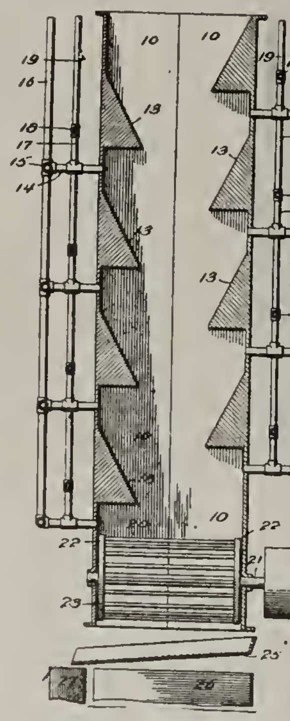
These new inventions are those that are especially of interest to anyone engaged in the line of building materials and their manufacture, or machinery to make them.

970,571—Crushing machine. Josiah E. Symons, Sheridan, Ind. Filed Aug. 15, 1907. Serial No. 388,723. In a crushing machine, in combination, a circular main frame having a spider-armed bottom provided with a central hub projected upward from said bottom; and a crusher head fitted for support around said hub and solidly mounted thereon.

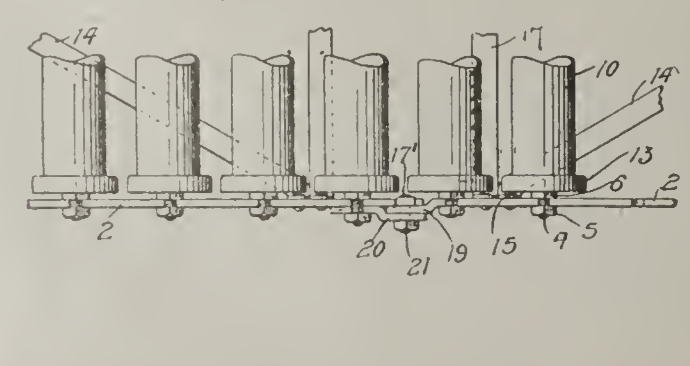


In a crushing machine, in combination, a main frame having a spider-armed bottom comprising a hollow hub; a centrally located, vertically adjustable shaft fitted into, and held by said hub in a fixed lateral relation to said frame—said shaft having a shoulder for supporting a crusher-head; and a crusher-head mounted around said shaft and carried on said shoulder when said shaft is raised to give vertical adjustment to said head.

971,853—Slag disintegrator. Edwin Lamb, Youngstown, O., assignor of one-half to German B. Buehrle, Youngstown, O. Filed June 18, 1910. Serial No. 567,682. In a slag disintegrator, a stack provided with alternately disposed inclined shelves, and means beneath said shelves for introducing a disintegrating agent. In a slag disintegrator, a stack, a breaker disposed at the lower portion of said stack, a fluid injector within said stack, and a liquid feed communicating with said fluid injector.



978,466—Gravity carrier. Rufus P. Mathews, St. Paul, Minn., assignor to Mathews Gravity Carrier Co., St. Paul, Minn. Filed Oct. 17, 1906. Serial No. 339,379. A gravity carrier having side rails composed of flat metal bars having slots or notches in their upper edges, rods detachably mounted in said slots and connecting said rails, and rollers having anti-friction bearings on said rods, substantially as described. A gravity carrier comprising side rails and rods connecting them at intervals, said rods having threaded ends and hubs fitting thereon, lock nuts engaging said hubs and rollers having anti-friction bearings on said hubs, substantially as described.



## FREIGHT RATE CHANGES.

Lake Erie & Western R. R. I. C. C. 2087. R. R. No. 496-B. (superseding I. C. C. 1985 and frt. trf. 496-A). Tile from Yoder, Ind., to Mandale and Tipton, O., 6c. per 100 lbs. Effective Jan. 8, 1911.

New York, Sus. & W. R. R. I. C. C. 1556. R. R. No. 1692 (Canceling S. W. 1652). Brick from Little Ferry, N. J., and Ridgefield Park, N. J., to De Kays, N. J., and Warwick, N. Y. $1.30 per net ton. Effective Jan. 7, 1911.

The Wabash R. R. Co. Sup. 2 to I. C. C. No. 2179. R. R. No. 10232 (cancels Sup. 1). Brick between Streator and Joliet, Ill., rate canceled and class rates applied. Effective Jan. 7, 1911.

Pennsylvania R. R. Sup. 4 to I. C. C. 2515. R. R. No. 332. Brick, etc., from stations on Pa. stations to stations on Lehigh Valley R. R. Effective Jan. 5, 1911. Issued by Robt. C. Wright, G. F. A., Philadelphia, Pa.

Southern Railway Co. Sup 11 to I. C. C. No. C-1318. R. R. No. C-151. (cancels Sup. 10). Brick from Belleville and East St. Louis, Ill., and St. Louis, Mo., to Akron, O., $2.30, Alpena, Mich., $2.60, Ganley Bridge, W. Va., $2.60 and many other points in Central Freight Association Territory. Effective Ill. Nov. 3. Issued by R. A. Campbell, G. F. A., St. Louis, Mo. Effective Indiana Dec. 10, Interstate Jan. 2.

Santa Fe System. I. C. C. 5518. R. R. No. 9788-B (cancels I. C. C. 5266 R. R. No. 9788-B. (Cancels I. C. C. 5266. R. R. No. 9788-A). Effective Jan. 6, 1911. Brick between points on the Coast Lines of A., T. & S. F. Ry. and from points on Coast Line of A., T. & S. F. Ry. to points on the Santa Fe, Prescott & Phoenix Ry. and leased lines; also San Diego Southern Ry. and Richmond Belt Ry. Issued by A. G. Sheer, C. T. B., Santa Fe System, Chicago, Ill.

Chicago, Rock Island & Pacific. Sup. 6 to (cancels Sup 5). I. C. C. C-8940, their tariff 26079-C. Brick, C. L., canceling rates from Argyle, Mo., to Meta, Hoeckers, Hurley, Eugene, Etterville and Eldon, Mo. Class rates will apply in future.

Baltimore & Ohio. Sup. 155 to I. C. C. 5634 (Cancels Sup 154). Brick, C. L., from Baltimore, Md., to Abrams, Bethlehem, Bridgeport, Dillinger, Port Kennedy, South Bethlehem, Valley Forge, Red Hill, Reliance, Hendricks, Lansdale, Rambo and Powder Valley, Penn., $1.90 per net ton; from Annapolis Junction, Md., 60c. per net ton, issued Dec. 1; effective Jan. 2. Issued by H. C. Smith, F. T. A., Baltimore, Md.

Lehigh Valley. I. C. C. B-6194. (Cancels I. C. C. B-4306). Brick and hollow building tile, C. L., from Eagleswood, Fords, Keasbeys, Maurer, Metuchen, Perth Amboy, Raritan Junction, Valentines, Webers, N. J., to New York, N. Y., $1; Jersey City, N. J., 50c.; Hollow brick and hollow building tile, $1.15 per net ton. This tariff also quotes rates to many other Lehigh Valley stations. Issued Dec. 2; effective Jan. 2.

Baltimore & Ohio. Sup. 3 to I. C. C. 9237. (Cancels Sup. 2). Brick and tile, C. L., to Clinton, Davenport, Dubuque, Lyons, Muscatine, Ia., East Clinton, East Dubuque, East Moline, Fulton, Moline, Rock Island and Savanna, Ill., from Cambridge, $3; Columbus, Summit and Taylor, O., $3.10 per net ton; also from other producing points in Ohio, minimum weight via A., T. & S. F., C., B. & Q., C., M. & St. P., C. & N. W., C., R. I. & P. and Ia. Cent., 50,000, except when marked capacity is less when same will govern. Via Ill. Cent. 40,000 lbs., except when the marked capacity in less, when same will govern; via C. G. W., and Wabash, 50,000 lbs., except when marked capacity is less, when same will govern. (This is an advance in minimum weight). Issued Dec. 1; effective Jan. 1, 1911. H. C. Smith, F. T. A., Baltimore & Ohio.

Chicago & North-Western. Sup. 4 to I. C. C. 6671. Brick and tile, C. L., from Omaha and South Omaha, Mo., to Ellsworth, Ia., $7.36 per 100 lbs. (advance), Iroquois, Cavour and Huron, S. D., 13½c.; issued Nov. 30; effective Jan. 10. S. G. Nethercot, Chf. T. B., C. & N. W., Chicago, Ill.

Chicago & North-Western. Sup. 1 to I. C. C. 757. G. F. D. 12999-A. Brick, C. L., from Des Moines, Ia., to Rock Port, from Des Moines, Ia., to Rock Rapids, Ia., Salem, Montrose, S. D., 12½c.; Hartford, S. D., 11.1c.; St. James, Minn., 10.7c.; issued Nov. 30; effective, Jan. 10. S. G. Nethercot, Chf. T. B., Chicago, Ill.

Mich. Cent. Sup. 1 to I. C. C. 3638. Trf. G. F. D-7886. Fire Bricks, C. L., cancel rates from Chicago, Ill., to Collingwood, Ont., class rates will apply; issued Nov. 20; effective Jan. 5.

Western Md. I. C. C. 3368 (Cancels I. C. C. 3303). Brick, C. L., from Gettysburg, Pa., to Arlington, Md., 60c.; Baltimore, Md., deliveries Brown Wharf, 90c.; Canton, $1; Fulton, 85c.; York street, 90c.; Chambersburg, Pa., 75c.; Hancock, Md., $1.20; also other points in Pennsylvania and Maryland. Effective Jan. 9. G. Smiley, G. F. A., Baltimore, Md.

Northern Pacific. Sup. 13 to I. C. C. 4423. Trf. No. 1080-B. Brick, C. L., from Spokane, Wash., to Walla Walla, Wash., 12c.; effective state Dec. 18; interstate Jan. 18. J. B. Baird, G. F. A., St. Paul, Minn.

Lake Shore & Michigan Southern. Sup. 11 to I. C. C. A-2487. Brick, C. L., to Paducah, Ky., from Porter and Chesterton, Ind., general brick, $2; common brick, $1.90; Cleveland O., $2.80. Effective Jan. 15. N. H. Anspach, Chf. T. B., Cleveland, O.

Lake Erie & Western. I. C. C. 2088. Building brick, C. L., from East Peoria, Ill., to Davenport, Ia., $1.20; Rock Island, Ill., $1; Trenton, Ill., 55c, per net ton; effective state Dec. 20, interstate Jan. 17. M. R. Maxwell, G. F. A., Indianapolis, Ind.

# TRADE REVIEW

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### THE PITTSBURG CONDITION.

Pittsburg, Pa., Jan. 3.—Things are looking rather bright among the brick manufacturers, brokers and resident brick representatives for a busy spring season. Architects are having more inquiries concerning new home construction and this means that the brick industry will be asked for deliveries at no distant date. In one instance, a firm of architects have been asked to make plans for eleven new houses in the Schenley Farms district and the liberal use of brick for construction of houses in that district is well known to local brick manufacturers.

At the offices of the Pittsburg Clay Products Co., an optimistic view of business is taken for 1911, and judging from the number of inquiries now being made, the season will be an unusually brisk one. Brick of the rough texture variety are greatly in demand in the Pittsburg district, and this demand is constantly growing.

The annual report of the Pittsburg Stock Exchange shows stocks of companies in this district, identified with the clay industry, to be in excellent condition and that they have been in demand throughout the year by investors. The following statistics, taken from the official report, will be read with interest:

| Listed Stocks— | Par. | Dividends. | TOTAL SALES. Shares. | High. | Low. | Last. | Dec. 31, '09 |
|---|---|---|---|---|---|---|---|
| National Fire Proofing | 50 | .. | 158 | 25½ | 25 | 25 | 26 |
| National Fire Proofing pf. | 50 | 4 | 12,007 | 9⅜ | 5 | 5¼ | 9½ |
| Harbison-Walker Refractories | 100 | 2 | 20,648 | 30½ | 21½ | 24⅜ | 30⅛ |
| Harbison-Walker Refractories pf. | 100 | 6 | 3,810 | 35½ | 31½ | 32¼ | 9<br>35 |
| American Sewer Pipe | 100 | .. | 138 | 310 | 275 | 300 | 310 |
| Listed Bonds— | Due. | Period Int. | | | | | |
| Harbison-Walker Refractories 5s | 1922 | J.-J. | $3,000 | 102¾ | 102¼ | 102¾ | 101¾ |
| American Sewer Pipe 6s | 1920 | S.-M. | 6,000 | 92 | 90 | 90 | 99½ |

The new brick plant of the Martin Brick Co., with a capacity of 40,000 brick per diem, has been placed in operation at Johnsonburg, which gives the concern three modern equipped brick plants all within a short distance of each other. One connected with this company recently declared to a representative of "Brick and Clay Record": "We have been busy, and sometimes we don't know where we are going to get the next order from. Then, a nice lot of orders will be booked and we can't think beforehand where the next lot is coming from. However, it is the same in the brick business as with all other lines of trade. One day orders are good, the next there is a falling off. When the reports for the month or year are totaled up, it is generally found that the business of the past year or month has been exceeded."

Information has been received in the district that the American Sewer Pipe Co. has dismantled its Markle plant on the Ohio River near Toronto, O., and has shipped all the machinery to the plant at Brazil, Ind. The buildings are being razed, and within a short time the site of the former plant will be merely a memory to the residents of that locality.

Local salesmen who handle paving brick are very optimistic concerning the outlook for big contracts during 1911. A few weeks ago the county commissioners of Washington County awarded contracts for brick to be used in improving the Meadowlands-Houston Road, as follows:

Pittsburg Buffalo company, one-fourth, at $15 per M.; Donley Brick company, Washington, one-fourth, at $12.50 per M.; James M. Porter, Toronto block, at $15 per M.; and James M. Porter, American Sewer Pipe Porter block, $15 per M.

The Donley brick is an experiment with the commissioners. It is a red clay brick, while the other brick heretofore used have been a vitrified fire clay brick. The Donley brick have been used successfully for paving, and have been used in Washington. No award of contract was made, but the Pittsburg-Buffalo Co. is the lowest bidder for furnishing brick for the Roscoe-Stockdale road.

It is said a new brick plant will be erected at Elwood City by local and outside capital. Names of those connected with the new enterprise are not made public.

The Lock Four Brick Co. has been granted a charter and will start operation at Charleroi. The new concern will remodel and improve the former plant of the Charleroi brick works. The new company is composed of Charles Potter and Samuel H. Pyle of Donora, and Frank Bly of Charleroi.

A new stock shed has just been built by the Upper Kittaning Brick Co., at Dewey, Pa. A large gas engine is being installed and it is planned to increase the capacity of the yards to 50,000 brick every nine hours.

The Harbison-Walker Refractories Co. has declared its usual quarterly dividend of 1½ per cent on the preferred stock, payable January 20, stockholders on record January 10. The announcement has just been made by Hamilton Stewart, secretary.

Sanitary sewer systems constructed along lines approved by the Pennsylvania state board of health are in demand. Many small towns in Pennsylvania plan to make use of this system this spring. This means an increased demand in sewer pipe and other clay products. The latest towns to present their plans before the state authorities are Carrick, Mt. Oliver, and St. Clair. Carrick has 27½ miles of sewers and other towns about two-thirds as many. About one-third of the sewage is dumped into Sawmill run and the rest in Beck's run. Each borough is to have two sets of sewers, one for storm water and the second for sewage. William McClurg Donley prepared the plans. Some little time ago Craftonborough authorized the construction of an approved sewer system.

At Columbia, Pa., the large brick plant of the M. S. Rupp Baking Co. was destroyed by fire. Loss, $30,000.

The Salina Fire Brick Co., of Greensburg, has recorded its charter capital $5,000. Stockholders are John L. Miller, Marian P. Shoemaker and John M. Yockey. The main office will be in Greensburg.

The Ridgway Brick Co. has commenced work on a large storage shed to have a storage capacity of 600,000 bricks.

One of the first steps taken by Johnstown people who recently purchased the plant of the Apollo Fire Brick Co., at West Apollo, was to change the name of the concern to The National Refractories Co. The new owners have adopted an aggressive policy, and the plant is to be considerably enlarged. Work on the proposed improvements has not yet been started.

Directors of the National Fireproofing Co. declared the usual quarterly dividend of one per cent on the preferred stock, payable January 16 to the stock of record January 1. Announcement also is made of the receiving of a large contract for conduits, for shipment to Buenos Ayres, to be used in placing telephone and telegraph wires underground in that city, as well as several other South American cities. The company recently received a similar contract from the Belgium government. While no figures are at hand, it is stated that the business of the company during the last year has been very satisfactory, and the indications for this year are promising. The company is finishing some large contracts. It has opened a special department for interesting builders of dwellings in hollow tile fireproof construction.

D. Warren DeRosay, formerly connected with the Shawmut Vitrified Brick Co., is now manager of the Corry Vitrified Brick Works, and has just returned from Albany, N. Y., where he secured a contract for 1,800,000 vitrified brick from the New York State Highway Commission. Mr. DeRosay has also secured the contract for furnishing the brick for the new Erie Y. M. C. A. building that will cover a city block and is to be eight stories high.

While definite confirmation is lacking, it is stated that the Schuylkill Haven Foundry Co., Schuylkill Haven, Pa., has been organized with a capital stock of $30,000 and will engage in the manufacture of soil pipe.

Stockholders of the Montello Brick Co., of Reading, have decided to increase the bonded indebtedness of the company $600,000 to put plants at Mantello, Wyomissing, Perkiomen and Oaks in operation.

The Highland Mantel and Tile Company has been incorporated at Pittsburg with a capital stock of $10,000. The Pittsburg incorporators are: A. Adelman, E. F. Adelman and R. F. Dooley, Pittsburg.

The Board of Public Works of Reading, Pennsylvania, are contemplating the purchasing of a "rattler" device for testing the paving brick used for the city. Heretofore the city has been compelled to send samples of brick to Philadelphia for testing to ascertain if they are up to specification.

Quotations of brick of the various grades in the New York market have been received here this week as follows:

Cargo lots, delivered cars, New York.

| | | |
|---|---|---|
| Front, buffs, No. 1 | 28 00 @ | 30 00 |
| Grays, shaded and speckled | 32 00 @ | ..... |
| White, No. 1 | 32 00 @ | ..... |
| Hudson River, common | 5 25 @ | 5 50 |
| Light, hard | 4 00 @ | 4 25 |
| Pale | 3 00 @ | 3 25 |
| No. 1, fire, American | 25 00 @ | ..... |
| No. 2, fire, American | 20 00 @ | ..... |
| Scotch | 35 00 @ | ..... |

## THE CHICAGO SITUATION.

Chicago, Jan. 10.—The new year has brought joy to the clay operators here, and they are delighted with the indications for one of the most active years ever anticipated. Actual operations are still being carried on at many of the large brick and clay working plants. This has been made necessary to a considerable extent by the fact that there has been and continues to be a very active call for brick and other clay wares. Anticipating a large spring demand, they are making ample preparations to meet it.

Chicago is increasing her reputation as a mecca for clay operations and for the distribution and use of all kinds of clay products. Each year this becomes more of a realization, and the increasing importance of the city in this respect has caused much favorable comment of late. This is due altogether to the manufacturers and dealers who have so persistently urged the fact upon the public. In and about Chicago there are a large and increasing number of plants for the manufacture of many kinds of clay products, and that there will be more in the future is a foregone conclusion.

The Middle West Clay Workers' convention, which has just ended its sessions here, demonstrated the fact that there has been much overlooked from the point of the clay men. The large gathering of enthusiastic manufacturers and machine people opened the eyes of some to the new possibilities of this city as a future clay center. It is the natural place to hold like meetings, and the clay men realize to the fullest that Chicago is the real user and developer of clay in every form. This will be more generally understood in the future, with like beneficial results.

The prospects for the building outlook for the present year have never been any better, if as good, as they are now. The number of structures to be erected here and in the suburbs this year will be a marvel to some who have conceived the idea that the limit had been nearly reached. One of the best evidences to gauge this by is to note the number of vacant buildings, both office, business, factory and residence. We speak of the modern buildings now. The percentage is relatively small, and the increase in both manufacturing and population is going ahead at a rate that is surprising some who are not in touch with the situation.

Some new brick plants are under way and others contemplated this year. Improvements and enlargements are to be made, and there is a flattering prospect ahead for all clay men.

Among the new plants to begin operations here in the past few months is that of the Allis Brick Co., whose large plant is located at Deerfield. While this company is now operating and turn out a fairly large number of brick each day, the capacity of the plant has not been reached, and will not be for several months yet. At the office of the company, in the Chicago Opera House block, Mr. Tomlins stated that there was enough to keep them operating all the time, and that the indications for the present year, as far as the brick demand was concerned, was fine. The company anticipated a very fine year and feel confident about the future.

The Wisconsin Lime and Cement Co. find the demand for face brick at this time to be a trifle quiet. Mr. Cormack said that the indications were very favorable and that he considered the future as one full of hope and business. This company being the agents for the Twin City Brick Co., carry a fine line of attractive face brick. Their general line of building supplies is also large, and they are among the leaders here. The building prospects are so good that there is every reason to feel that they will be quite busy in the near future.

The Chicago Retort and Firebrick Co. are looking forward with pleasure to the year's demand. President Reed stated that the past year's business had been very fine, and that the indications thus far for the present year were as favorable as he had hoped to see them. They are operating both of their large plants and are getting in trim to supply the large demands that they are quite sure will materialize as the year advances.

Thomas Connelly & Co. find the demand and the prospects for sewer pipe and kindred lines to be very fair for the year. It is a little early, as yet, to foresee what the demand will really be, but Mr. Connolly was inclined to view the matter with a feeling of hope, and said that there was much to make the situation look pleasing now. They are operating their plants at this time and are keeping things moving along lively.

The National Brick Co. are hard at it, making brick for the early demand. They feel that the prospects were never more pleasing for any year, and say that there will be a large demand for brick. President B. F. Weber, of this company, has been confined to his home for several weeks with the grippe, but is now able to be about once more.

The American Terra Cotta and Ceramic Co. find that there is little to say at the present time with reference to business. The past year was satisfactory to them, but they are hoping for a more active year in 1911. Mr. J. E. Crowe said that they are operating their plants and that they hoped to be active in the future as regards business.

Mr. Marshall, of Bonner & Marshall Co., is not entirely recovered as yet, but he is at his office nearly every day for a short time. He hopes to be able to spend more time there later. The demand for face brick with this concern is very fair, but at this time of the year it is a little early to expect much in the way of large orders.

The Illinois Brick Co. are well pleased with the present situation and are doing as much as they can at their plants now. They will continue to operate during the winter months. Mr. Shlacke was pleased with the past year's business, which they were netting up, and had hopes for the present year, as the indications were favorable for the building brick demand.

The Chicago Hydraulic Brick Co., through W. P. Varney, said that the indications for the new year were never more pleasing for brick than they were now. The past year had been very gratifying to them and they look forward to a very brisk demand for brick this year. The indications for the year point to a very active demand.

The Junkins & Reynolds Co. find the indications pleasing. There has not been much given out as yet for the brick men, but there is considerable on the boards, and there will be in the near future a very lively time for the orders that are to be given out. They expect to get their share of the business and to keep very busy for the year.

The S. S. Kimbell Brick Co. report things a trifle quiet in face brick lines now. This company look forward to a nice demand for their lines this year.

The Carey Brick Co. say that while the weather is good they expect to continue to operate. The stocks on hand now are so low that they are compelled to do as much as they can to prepare for the coming rush in the spring. This will be large, and there will be a noted increase in the clay for building over that of last year.

The Purington Paving Brick Co. say that the indications look good for the present year for the paving brick industry. They feel confident of a nice demand and are quite certain to be very busy in a short time.

## FROM DETROIT.

Detroit, Mich. Jan 12.—Judging from the showing in building operations made in the first week of the new year, Detroit will have another record season in this line. The number of permits issued exceeded the 1910 total, and the cost of the structures was also considerably more. Brick will undoubtedly be in favor with the majority of builders throughout the year, and a number of motor car manufacturers have already signified their intention of constructing extensive additions, largely of brick, during 1911. In the year just closed a new record in building operations was established in Detroit, according to the figures compiled in the offices of the city building inspectors. In the number of permits issued and cost of construction 1910 was far ahead of 1909. That the increase was a steady one is shown by the fact that the total for the last half year shows a substantial gain as compared with the first six months. In the six months ending December 31, there were 2,545 permits issued for the erection of new buildings, representing an aggregate cost of $8,969,190, and 429 permits for additions to cost $641,430, as against 2,074 permits for new work costing $6,769,205, and 450 permits for additions costing $846,120 in the first half year.

For the entire year there were issued 4,619 permits for new work representing an expenditure of $15,738,395, and 879 permits for additions, of the aggregate cost of $1,487,550, as compared with a total of 1909 of 4,399 permits for new work involving expenditure of $12,621,245, and 753 permits for additions, costing $1,650,205. These figures show a net increase for 1910 of 346 permits of all kinds, representing an increase in expenditure for building amounting to $2,924,495, as compared with 1909, or a gain of a trifle more than 23 per cent. One of the largest single items was the permit issued for the new building for the Dime Savings bank, construction of which has not been started. Even with this item of $1,200,000 omitted from the total, the increase for the year as compared with the preceding 12 months was $1,724,495. The summary shows that brick was one of the predominant materials used in construction work. In practically all the permits issued for factory work, brick was used almost entirely.

The Builders' & Traders' exchange held its annual meeting a few days ago and directors for the ensuing year for the two-year term were elected as follows: J. H. Gregg, E. R. Pett, E. M. Harrigan, W. R. Kales and A. F. Pudrith. The annual banquet will be held early in February. Governor Osborn and Secretary Roberts, of the Cleveland exchange, will be the principal speakers.

In his address to the annual meeting, retiring President George F. Stokes suggested a broadening of the exchange's scope to a general civic agency, something beyond a mere trade affiliation. Sec. Charles A. Brown reported a membership of 274, and a prosperous financial condition.

The Church Brick Co., formerly the Sibley Quarry Co., reports a very active demand for its white brick. This company is one of the best known in the Detroit district. Plans for 1911 business are not yet fully completed, but it is quite possible the firm will add to its capacities.

The Schneider Brick Co. reports a satisfactory year in 1910, and the outlook for 1911 as being very encouraging. This company operates yards in the western part of the city, and is considering opening new pits. "January is always a slow month, and 1911 has proven no exception for the month," said a member of the firm. "We are making quite strong calculations for business during the spring, summer and fall months, and there is a possibility our plant will be enlarged."

Springwells, the district in which many of the brick-making plants in the vicinity of Detroit are located, has recently purchased fire-fighting apparatus, to protect the industries in the territory.

The Wyandotte common council has taken favorable steps toward continuing the Biddle avenue pavement to the southerly city limits.

W. S. Pocock, brick contractor, has moved his offices from 88 Home Bank building, to 36 Rowland building.

The Walker & Frank Brick Co. was recently incorporated at Detroit, Mich., for $50,000. The stockholders are William T. and William W. Walker and Charles T. Frank. The company report a steady increase in business and expect to enlarge their plant considerably next year.

Detroit and Michigan brick-making interests are interested in a figfiht to be waged before the supreme court of the United States by Michigan industrial and commercial bodies, against the railroads of the state. The railroads want to force an unsatisfactory set of demurrage rules upon the shippers. A number of railroads have forced shippers to sign the rules on the threat that cars would not be forthcoming as usual. The rules were then signed under protest, so if the fight is successful returns can be made from the transportation companies to the shippers.

## WEST OF THE ROCKIES.

Denver, Colo., Dec. 29.—The old hand yards in Colorado are fast disappearing, and are being replaced by modern plants with up-to-date equipment. In the vicinity of Denver the clays are adaptable for both the stiff and soft mud process in making brick, tile and sewer pipe, while the clay used for the higher class ware is shipped from the mines at Golden. The railroads make a reasonable freight rate and handle the situation effectively. Most of the coal used for burning and boiler firing is native, coming from Routt County, Leyden, and the southern part of the state. The rapid growth of Denver and surrounding towns afford a ready market for the manufactured wares.

The Swift Shale Brick Co. with offices at Denver, and works at Arvada, was organized two years ago with a capital stock of $50,000. The Fernholtz press and Eagle pan are used; electricity being the power. The clay is dug with a gatherer and conveyed into the pan by the conveying belt. Five kilns comprise the battery and about six million is the average capacity of the plant. They make a shale dry-press brick which is finding its way into Denver's largest buildings on account of their vitrified non-absorbing qualities. Mr. J. V. Swift is the superintendent and manager.

The United States Glazed Brick & Pottery Co., organized at $50,000, has secured options on a large tract of land with a fine deposit of clay, at Golden, Colo., and expects later to engage in manufacturing fine china and terra cotta.

So great has been the damand for houses for workmen at the brick yards at Newark, Cal., that many new cottages are being erected. The work is being rushed so that they will be in readiness for those coming to work at the new brick yard.

## FROM THE BUCKEYE STATE.

Columbus, O., Jan. 8.—Among the brick and sewer plants in Ohio there is more or less quietude prevailing just now, due mainly to the off-season in the trade. There are a number of fire brick plants in operation, and these are working on contracts which will assure continuous employment throughout the early season.

In the Hocking Valley there a number of plants idle, the owners taking time to make needed repairs to their properties. In the Ohio Valley territory, the sewer pipe plants are working on very satisfactory time, and the starting of the new Union Clay Manufacturing plant at Toronto has increased the output of that territory.

The paving brick contractors throughout the state are deeply interested in the proposals which are being asked from municipal officials on work which is to be started this spring. That more brick highways will be built in the Buckeye State this year than ever before goes without saying. The subject is one which municipal engineers have given deep study during the past, and the conclusion has been reached that brick and paving blocks are just the proper thing to use for highway construction work.

At Lisbon (O.) the plant of the American Sewer Pipe Co., which has been idle for a considerable time, has resumed operations, but not until after many improvements to the property were completed. Two new kilns have been completed and new bottoms have been built in all the old kilns.

George W. McNeill, of Toronto, O., holds the record for working in clay mines, for up until January 1, he had spent 60 years working in the Ohio Valley clay mines. He started as a water carrier in a clay mine in 1861, when he was only nine years old. During later years, Mr. McNeill has been working as a contractor in the clay mines, but has given up this employment to "work in daylight."

The North Lawrence Brick, Tile and Pottery Co. has been organized with headquarters at Canton. The company is now busy surveying for the proper location of an extensive plant to be erected on the William Reinoehl farm, near the Newman Coal Co.'s mine. This will prove quite a boon for North Lawrence and will help Newman considerably, as it is within three miles of this village. It is said Pittsburg capital is behind the enterprise, while the promoting is being engineered by the Hon. J. P. Jones, better known as the North Lawrence statesman.

An important change in the management of the East End plant of the American Sewer Pipe Co., at East Liverpool, is announced, George Freeman, of Toronto, general manager of the plant and one of the best known sewer experts in this section of the country, resigning after 11 years of service. His successor has not yet been selected.

The East Ohio Sewer Pipe Co., at Irondale, is shut down for a short time in order to make some necessary repairs.

LeRoy W. Gaddis, Charles F. Harrison, M. R. Thornton, H. Miller and Barton Griffith, of Columbus, have incorporated the Gaddis-Harrison Brick Co., with a capital stock of $25,000. The company will manufacture and sell brick. Mr. Gaddis is well known in building circles, as he has had a selling agency for several well known brick plants for some time.

E. L. Ensign, manager of the Sanitary Glass Facing and Brick Co., of this city, has returned from New York City, after superintending the installing of the product of the company in the Twenty-third Street subway for the Interborough Rapid Transit Co., where it will be closely watched by the largest contractors and builders in the country, owing to the fact that it is a new product. The company has had agencies in all the largest cities of the United States and reports that the outlook for the coming season is very bright.

The plant of the Blanchester, Ohio, Brick and Tile Co. was destroyed by fire. The machinery was badly damaged, making an approximate loss of $8,000, with a very light insurance.

An important purchase of adjoining property was made by the Stowe-Fuller Co., dealers in brick and building supplies, Cleveland, O., comprising a tract with 162 feet on Perkins avenue N. E., and E. 44th Place, and 325 feet deep, containing a number of houses, was purchased of the Bissell estate through the office of Harry Bissell, 312 Citizens Bldg.

The property has a Perkins avenue frontage of 162 feet and extends along E. 44th Place. In all, there are ten frame houses on the land. There is also a frontage on Windsor avenue. The Stowe-Fuller Co. will hold the property for the present, but will ultimately use it as a yard for its supply business.

## NEWS FROM THE SOUTH.

Memphis, Tenn., Jan. 7.—William A. Nelson, state geologist, has been making a preliminary survey of lands near Memphis. He says there are large quantities of valuable clay in West Tennessee that should be developd. He thinks the best quality of clay found is in the territory between Paris and Bolivar. He expects to visit various plants in the vicinity to procure samples of the clay. He thinks the clay is a very valuable resource of the state, but has been neglected in the development, and that sewer pipe, pottery, tile and all allied products can be successfully manufactured from these clays.

There is said to be a fine opening at Sweetwater, Tenn., between Knoxville and Chattanooga, on the Southern Railway, for a brick manufacturing plant. Clays in the vicinity have been tested and declared to be of first quality; markets at Knoxville, 41-mile haul, and Chattanooga, 70-mile haul. Refer to file No. 35,894. M. V. Richards, Land and Industrial Agent, 1375 Pennsylvania avenue, Washington, D. C.

### Report by Geo. H. Ashley, State Geologist, Says Tennessee Clays Worth More than Gold Mines.

An examination of the clays of west Tennessee now being made by the State Geological Survey has already convinced the state geologist that Tennessee offers exceptional opportunities for the development of a large industry in the manufacture of china ware, sanitary and porcelain ware of all kinds, glazed and encaustic tile, electric high-tension insulators and fire brick, to say nothing of the great number of lower grade products—ornamental, paving and common brick, terra cotta, roofing and drain tile, domestic ware, etc., etc. At the present time the state produces between one and two million dollars' worth of clay products; but most of that is in the form of common building brick. It is in the manufacture of the higher grade products that the state geologist believes there is room for great expansion.

In the first place the state has the necessary raw materials. At the present time Tennessee clays are being shipped in large quantities to Indiana, Ohio, Pennsylvania and New York, in many cases supplying the largest part of the raw clay used.

In the second place, south, west and southwest of Tennessee lies a great market, at present obtaining its supplies from states to the north and east of that state, the raw materials being shipped from Tennessee to the potteries, manufactured and shipped back again to the state, or through it on its way southwest.

In the third place, Tennessee is well supplied with shipping facilities, both rail and water.

To take a single illustration: In 1891 a pottery was started in Evansville, Ind., making semi-porcelain and white granite table wares. It used ball clay from Tennessee, kaolin from North Carolina and Georgia, feldspar from Pennsylvania and ground flint from East St. Louis. In 1904 the output of that plant alone had grown to an annual value of $220,000 and gave employment to three hundred hands.

Portions of west Tennessee are already dotted with great holes from which clays are being shipped. The clay beds range in thickness from two feet or less to eighteen feet or more, sometimes in solid beds of uniform character, sometimes in a succession of beds of varying character, the individual beds being suitable for district uses. Thus, one bed may be especially suited to the making of saggers, the next underlying bed for white china ware, the next for high-tension electric insulators, etc. As a rule, the deposits are limited in extent to a few acres, but as a bed of clay ten feet thick and ten acres in extent will yield over 200,000 tons of dry clay, these little pockets in the aggregate could supply a large output, as indeed they are doing at present. As a rule, the deposits have a rather heavy overburden amounting, in some cases, to thirty or forty feet, though the average for the pits now being worked will probably not run over fifteen or twenty feet.

Apparently the main obstacle in the past to the location of clay plants in west Tennessee for the manufacture of high grade wares has been the lack of trained labor, and the fact that the nearest coal, that from the west Kentucky fields, is too high in sulphur. It is probably true that a plant starting in that territory would have to import a certain amount of its skilled labor. As the belt through which the best clays run follows the high divide between the Tennessee and Mississippi rivers—a region of fine farms, prosperous towns, rapid streams and excellent health conditions, equal in these respects to most parts of Ohio, Indiana or Illinois—the importation of such labor should present no difficulties.

The fuel problems may be met by converting the coal into producer gas and washing; by the use of oil from the neighboring Caddo oil field; by the possible use of producer gas from the beds of lignite found in the same region, or by the use of coal from east Tennessee. In the latter case, it would require the bringing in of only coal enough for the kilns, as Kentucky coal could be used for power for the mills, etc. Or the plants could be located at Nashville or some other middle Tennessee point within easy reach of the ball clay from west Tennessee, the kaolin and feldspar from Georgia (if Tennessee deposits prove insufficient), and coal from the coal field just east of the city. Nashville is naturally a distributing point with both rail and water freight, and already has an encaustic tile plant and other large clay interests.

Considering, therefore, that the bulk of the raw materials of all kinds used in the manufacture of high grade clay wares are obtained from the south, it would seem that as much of these wares as may be needed to supply the southern and southwestern market could well be made there.

The Sumter (S. C.) Brick Works, which is owned and controlled by Mr. I. A. Ryttenberg, was almost demolished by a fire which started in one of the buildings, and owing to the fact that the wind was blowing a good strong gale the flames made short work of the other buildings. The brand new brick machine, which had recently been installed, was a total loss. The machine cost $2,500. The clay shed and half the dry kilns were torn down, but this did not save them. All of the machinery was twisted, making a total loss of this, once the finest brick plant in the state. The company wil have to refuse out-of-town orders for some few weeks, until the new machinery is secured. The coal cars caught but they were pulled out of reach of the flames by the shifting engine. The total loss is about twenty thousand dollars, with a small amount of insurance.

## KANSAS AND THE MIDDLE WEST.

Topeka, Kas., Jan. 2.—Lawrence, Kas., may be said to be literally built of the product of its Vitrified Brick & Tile Co. The streets are paved and its buildings are constructed with its brick, and every working day thousands of other brick it manufactures are laid into walls to make the city greater.

The special taxes that are levied to pay for paving and other public improvements into which paving brick enter, do not go out of the city. The vast bulk of these taxes go to pay laboring men who produce the brick and who lay them in pavements. The balance goes to pay the legitimate expenses of manufacture and contracting, and incidentally to provide the necessary profits of such business. Into whatever channels it goes, this money helps to build up the city of Lawrence by pushing onward her car of progress at no mean speed.

Were it not for this institution it is hardly probable that street paving on such an extensive a scale as we now see it would ever have been undertaken. And there are few cities of the same size that have paved streets to the extent of this small city.

In closing the year, the Brick & Tile Co. was able to report that its activities during the year 1910 were all that could be desired when the year began, and now, on the threshold of 1911, it looks forward to a prosperous and busy year. During the past year the plant has been made thoroughly secure from flood dangers. On the railroad side the new cut-off protects it, while on the river side, an earth embankment has been raised higher than the crest of the flood of 1903. This insures the operation of the plant during the highest water periods, which will prevent waiting for the water to subside so the plant may be operated. The improvement cost quite a sum of money, and was built with an eye to permanency.

A 10 per cent dividend for 1910 was declared at the annual meeting of the board of directors of the Salina Vitrified Brick Co. The following officers were elected for the coming year: President, Dr. J. W. Neptune; vice-president, Bob Turner; secretary, F. C. Hadden; treasurer, Frank Ekstrand.

"There is untold wealth in Kansas clays. The university is about to begin testing these clays for the manufacture of different kinds of brick, pottery and terra cotta, which will tend to open up an undeveloped resource of the state, making the clay industry one of the most important industrial pursuits of the future."

This is the opinion of Prof. Erasmus Haworth, state geologist and head of the school of geology and mining at the University of Kansas. Professor Haworth is the originator of the plan to install clay working machinery and chemical laboratories for the purpose of determining the values of Kansas clays at Kansas University.

He says the best grades of browns, yellows, buffs, red and creams in brick can be made for practically all the different colored clays found elsewhere are also to be found in Kansas. An abundance of cheap fuel is contiguous to the clay beds in several sections.

Professor Haworth has a collection of vari-colored clays which he has gathered from the four corners of the state. He also has a chart showing the location of the beds, the location of the coal deposits and the railroad facilities in each district. He says that today the finest grades of ornamental brick and terra cotta, which are now being shipped in from St. Louis and Chicago, can be made a great deal cheaper within the borders of the state.

"It is surprising to note the increase in the last year alone in the use of brick and terra cotta as building material within the state," said Professor Haworth. "Hundreds of thousands of dollars are being spent yearly for the finer grades of finishing brick and terra cotta for building purposes."

Clays are already being shipped in to the university in 2,000 and 2,500-pound lots for the practical tests which will be made. The fine arts department is now experimenting with the fire clays. Professor Griffith, who is supervising the work, has several hundred pieces of pottery which have been molded and fired by students.

## OUR EASTERN LETTER.

New York, Jan. 9.—A contract for 45,000,000 common brick, to be supplied by the N. & W. J. Peck Co., of 103 Park avenue, this city, to the P. J. Carlin Construction Co., which will build the new state prison at Wingdale, Hudson County, N. Y., was the biggest factor in spreading optimism throughout the east since the first of the year.

The announcement was made last week and simultaneously it was stated that the brick will come from the yard No. 2 of the Atlas Building Material Co., recently acquired from the Bartlett estate by a company in which John B. Rose was a prominent figure. This yard is located at Hudson, N. Y., and adjoins a yard which has not been worked for a long time. It is understood that negotiations will be closed before the first of February for this property and nine new machines will be installed before the opening of navigation, so that 15,000,000 brick a year for three years can be turned out without interfering with the output and contracts held by the present Atlas yard which has nine machines. This will bring the capacity of this property, one of the youngest and at the same time the oldest brick making establishment in the Hudson River district, up to almost first place as far as capacity is concerned.

The shipments will be made from Hudson to Wingdale, a distance of about thirty miles, entirely by railroad. No statement was made public regarding the price under which this brick will be delivered, but it is rumored that $5.50 at kiln is not far from the actual price.

As soon as this announcement was made the trade assumed a more confident air. It felt relieved that this job was not to be held back. It was shown that in New York city alone there are 82 structures, estimated to cost $63,670,000, that are ready to go ahead before spring. Of this number contracts have already been let for 23, aggregating about $35,000,000, so that there is plenty of opportunity for marketing the present supply of common brick. These structures range from the $10,000,000 passenger station of the New York Central & Hudson River Railroad Company at 42nd and Vanderbilt avenue, to $40,000 apartment houses. This operation alone will take more than 8,000,000 common brick, while the McAlpine hotel will probably take another 5,000,000 at the least.

There is an actual outlet for common brick in this market, as viewed from contracts awarded, of more than 39,000,000 brick, in addition to the 45,000,000 contract recently taken by the N. & W. J. Peck Co. The contract for the Municipal building alone covers more than 10,000,000, deliveries on which are already beginning. With approximately 59 new building contracts, each over $40,000, to be let within the next few months, the tremendous supply of common brick on hand up the river and in dock today should be well taken care of.

### Policy at Present Is to Go Slow.

While the trade is following the policy in this market of going slow as if awaiting the actual opening up of business, there is nevertheless considerable faith in the ultimate 1911 business. They think the volume will be quite in accordance with what 1910 developed and they are laying their plans accordingly.

At this time of the year the number of "covered" cargoes on hand registers the pulse of the trade. Today there are 81 cargoes. Last year at this time there were only 48. The reason for this difference is that dealers thought they foresaw a busy year and they stacked liberally. This year they are buying only for immediate needs and their yards are not plentifully stacked. The last two weeks of December, of course, are dull ones. This year was no exception, but the proportion of cargoes sold to the number that arrived was not far below normal. The tables showing movements for the end of the year follow:

| Left over from December 19, 21. | Arrivals. | Sales. | Covered. |
|---|---|---|---|
| Monday | 18 | 2 | 2 |
| Tuesday | .. | 9 | 2 |
| Wednesday | 13 | 2 | 2 |
| Thursday | 1 | 12 | .. |
| Friday | 10 | 4 | 1 |
| Saturday | 9 | 2 | 1 |
| Total | 51 | 31 | 8 |

Left over for Dec. 27, 39.
Prices, $4.75 to $5.00.
Condition of market, sluggish.

| Left over for December 27, 39. | | | |
|---|---|---|---|
| Monday | 0 | 0 | 0 |
| Tuesday | 11 | 2 | 12 |
| Wednesday | 0 | 1 | 0 |
| Thursday | 0 | 8 | 0 |
| Friday | 4 | 4 | 0 |
| Saturday | 1 | 3 | 0 |
| Total | 16 | 18 | 12 |

Left over, Jan. 3, 25.
Prices, $4.75 to $5.00.
Condition of market, dull.
Total number of covered cargoes in market, 81.
Quotations on covered cargoes, none.

During December there were several thaws which enabled the Cornell Towing Company to bring in some brick.

No common brick has come into this city since the middle of December from the Raritan river district where the Sayre & Fisher plants are located, owing to the river being frozen over. The company is making no quotations on Raritan rivers for new business. In Newark, N. J., the shipments are coming in by railroad and the dealers are getting $6.75 a thousand.

The following price averages cover common hard brick from the Hudson river in the Metropolitan market for 1910 with comparisons with 1909:

| | 1909. | 1910. |
|---|---|---|
| January | $6.40 to $5.40 | $6.30 to $6.70 |
| February | 6.80 to 7.06¼ | 6.81 to 7.31½ |
| March | 6.87½ to 7.12 | 6.18¾ to 6.75 |
| April | 7.31¼ to 7.41¼ | 5.75 to 6.25 |
| May | 7.40 to 7.75 | 5.81¼ to 6.28½ |
| June | 6.18¾ to 6.77½ | 2.77½ to 5.86½ |
| July | 5.55 to 6.25 | 5.20 to 5.79 |
| August | 4.81¼ to 5.31¼ | 3.87½ to 5.43 |
| September | 5.37½ to 5.87½ | 5.03 to 5.14⅔ |
| October | 5.50 to 5.90 | 5.22 to 5.50 |
| November | 5.87½ to 6.25 | 5.06¼ to 5.46¾ |
| December | 5.62½ to 6.00 | 4.75 to 5.25 |

Computators started out this week to count the Hudson supply and it is freely predicted that the number on hand will be found to be much less than had been generally believed.

Interviews among the agents and manufacturers in the East show that manufacturers are sitting tight, awaiting developments. There is little tendency to extend equipment among the common brick manufacturers, although there is a better inquiry going out to equipment companies from front brick houses.

The American Enamel Brick & Tile Co., and Carter, Black & Ayres, handlers of Harvard and other front brick, have moved from No. 1 Madison avenue to the Century building, 1182 Broadway.

Fredenburg & Lounsbury, front brick distributors, have perhaps one of the most elaborate front brick exhibition rooms to be found in the East, at their new offices at 381 Fourth avenue.

Houghtalling & Wittpenn have enlarged their offices at 44 East 23rd St. and have made their exhibition room more commodious so as to take in a full display of the products of their new East Brady, Pa., plant.

Mr. Augustus Reeves, a brick manufacturer at Camden, N. J., for many years, started his first plant at Pea Shore, north of Camden, where the first Chambers machine was used. He continues to use this eminently satisfactory machine at his Camden plant. The Standard dryer is used and the yearly capacity approximates 12,000,000. The output includes fire brick, red brick, drain tile and sewer pipe.

James K. Coomes, a well known brick manufacturer of Springfield, Mass., died recently after a short illness. Mr. Coomes was a descendant of an old English family. He first entered the brick business in Long Meadow and later he went to Springfield, where he engaged in the brick manufacturing business with D. E. Burbank. For over twenty years they conducted the well known yards at Long Hill. Later he sold this business and bought a brick business in Chicopee, which was sold about a dozen years ago to the Springfield Brick Co. Since then he has been the manager of the Forest Park yard of that concern.

The brick manufacturers of Dover Point, N. H., are having a large amount of wood hauled to their yards for use in burning brick next summer.

The terra cotta works operated by Ford Henry at Fort Murray, N. J., was seriously damaged by fire last month.

The Milsdale Brick Co., near Cheshire, Conn., has landed the contract for furnishing brick for the new reformatory building at Cheshire. The order is for several million brick and it will take two years to fill it. The working force will be doubled and the hauling will be done by traction engines.

The New England Brick Company, at Mechanicsville, N. Y., has completed the burning of an eighteen-arch kiln of brick Saturday, using the new system recently successfully tested by burning bricks with birdseye coal instead of wood. The kiln was burned out in four and one-half days under the new system, against six to seven days under the old with wood.

## TEXAS AND THE SOUTHWEST.

Austin, Texas, Jan. 3.—The present year promises to be an unusually prosperous one for the brick and tile industry in Texas. The building activities in the towns and cities being planned on a scale that insures a constantly increasing demand for construction material of all classes. The use of paving brick will be greater than in the history of the state, if the tentative plans for civic improvements that are now under way are carried out. The drainage movement in the gulf coast region and the lower Rio Grande valley is creating a demand for tiling and this material is just beginning to be introduced into localities where its beneficial qualities were heretofore practically unknown.

The Southwestern Cement, Brick and Tile Co., which was recently organized at Victoria with a capital stock of $6,000 will erect a brickmaking plant of 20,000 to 30,000 daily capacity at that place. The incorporators of the company are James F. Welder, Theodore Buhler and John Stoffels. Mr. Stoffels will be the manager.

The Gulf Coast Brick and Tile Co. recently completed a modern brick manufacturing plant near Brownsville. It has a daily capacity of 60,000 brick, and was erected at a cost of $35,000. The company owns a large deposit of brick-making clay, situated adjacent to the new plant. C. A. Winsted is president and general manager. The wonderful development of the lower Rio Grande valley and the building of new towns and homes have created a great demand for brick and other construction materials.

The new plant of the Sixela Fire Brick, Pottery & Coal Co., at Texline, will be finished the early part of the present year. It will have a daily capacity of 60,000 bricks. The building will be fireproof and the machinery modern in every respect.

The Houston Brick and Tile Co. of Houston was recently organized with a capital stock of $25,000. The incorporators are C. A. Barbour, S. Taliaferro and C. R. Minor.

The Mackey Brick & Tile Co. is running its large plant at Calaveras to its full capacity. It has large orders for brick and tile which it is filling, some of the shipments being made to distant parts of South Texas.

The Lone Star Kaolin Co. of San Antonio was recently organized. It has a capital stock of $6,000. The incorporators are W. N. Sturgis, James E. MacMurray, Carl R. Latham, D. F. Cameron, W. E. Carr, E. B. Boyd and A. A. Roghter, all of Chicago; J. E. Webb and C. A. Goeth, both of San Antonio. The company owns a large deposit of kaolin and will install a plant for the manufacture of kaolin ware and brick, it is stated.

Bernard Brown is installing an extensive system of tile upon his land near Del Rio. It is a new thing for that region and the experiment is being watched with interest by other farmers of that part of the state. The tile serves the purpose of sub-irrigation of the land.

It is claimed by experts who recently examined a deposit of high grade kaolin, situated near Crowther, that it contains more than five million tons.

Houston, Tex., Jan. 3.—The growth of the clay industry in Texas affords a striking illustration of how it is possible to make profitable use of mineral resources. So far as can now be ascertained, with a fair degree of accuracy, the value of the clay products of Texas during the twenty-seven years ending with 1908 is $28,469,983. Of this very respectable amount brick and tile account for $18,747,440 and pottery accounts for $1,183,264, leaving $8,539,279 as the total value of the combined products during the years prior to 1896, when they were not separated in the returns.

The maximum value of the combined products during any one year was reached in 1907, when it rose to $2,557,561. Pottery reached its maximum value, $125,146, in 1908, but brick and tile attained their maximum in 1907, with $2,447,561.

The brick plant at Cokeburg, Pa., has been put in operation after being shut down for several months.

The following table shows the growth of the industry since separate returns were made for brick (and tile) and pottery:

**Yearly Value of the Clay Products of Texas—1896 to 1908.**

| Year | Brick and Tile. | Pottery. | Totol. |
|---|---|---|---|
| 1896 | $ 857,672 | $ 58,081 | $ 915,753 |
| 1897 | 1,134,829 | 62,201 | 1,197,030 |
| 1898 | 631,738 | 55,342 | 758,211 |
| 1899 | 1,139,067 | 82,052 | 1,221,119 |
| 1900 | 1,083,553 | 87,464 | 1,171,017 |
| 1901 | 1,632,189 | 91,186 | 1,723,375 |
| 1902 | 1,595,612 | 98,202 | 1,693,814 |
| 1903 | 1,374,914 | 97,666 | 1,475,445 |
| 1904 | 1,429,596 | 106,501 | 1,536,097 |
| 1905 | 1,618,157 | 100,788 | 1,718,945 |
| 1906 | 1,860,963 | 108,635 | 1,975,582 |
| 1907 | 2,447,561 | 110,000 | 2,557,561 |
| 1908 | 1,941,589 | 125,146 | 2,066,735 |
| Totals | $18,747,440 | $1,183,264 | $19,930,704 |

During these 15 years the total value of the brick and tile is $18,747,440 and of the pottery $1,183,264, making a grand total of $19,930,704, or an average annual value of $1,328,713. During the five years ending with 1908, the value of the brick and tile is $9,297,866, or very nearly half of the total value during the fifteen years.

The brick and tile business is taking care of itself and its further development may be expected to be along lines already laid down. What is most needed now is a systematic study of the clays with reference to their utilization in more artistic and finished designs, in the manufacture of higher grade pottery for table use and for ornamental purposes. There is no lack of such clays in Texas. All that is needed is some place where they can be studied, where experiments on a considerable scale can be made and reliable data secured.

The statistics here given are from the reports of the United States geological survey. In addition to much valuable information concerning clays in the reports of the Texas geological survey 1888-1892, the university issued a report on the clays of Texas in 1908. It was prepared for the university mineral survey by Dr. Heinrich Ries of Cornell University.

Texas clays should be studied in Texas and means to this end should be provided.

The Harlingen Brick Works has just turned out a new pressed brick. The brick is a very pretty color and bears the Hill brand (—K). The new shed which is under construction for the brick works is rapidly nearing completion. New kilns have also been installed and oil burners will be installed shortly. Owing to the increased demand for Harlingen brick the company have let a contract for buildings and facilities for doubling their present capacity. The work will be finished in time for the spring season.

Plans are on foot for the establishment of a tile plant at Corsicanna. Tests have been made of the clay, which has been found to be suitable for producing tile.

Mr. W. R. Grant, comptroller of the National Fire Proofing Co. of Pittsburg, visited Houston recently with a view of establishing a plant and warehouse at that place, which will be the twenty-seventh the company has in the United States. The establishing of this plant will mean the outlay of more than $100,000 in the city. Mr. Grant says: "Of all the territory it has been my duty to visit of late, Texas seems to offer the best field for commercial enterprises, in which Houston seems to take the lead." It is expected that the company will establish their general southern offices at this point, with several factories at different points in the state, all of which will assist in making a "greater Houston."

One of the largest and most successful concerns helping to advertise and bring trade to Beaumont is the Gulf States Brick Co., with offices in the Perlstein Bldg. This company is the oldest and largest manufacturers of stiff mud building brick in the state of Texas. Their latest and most artistic line of face brick is the rough face Morocco brand that ranges in color from red to dark brown. The plant at Loeb employs about sixty men and they make 60,000 brick per day. The officers of the company are men of fine business ability. They are: Newton R. Wilson, president; R. M. Hallowell, secretary and treasurer; Jennings Vandaveer, manager.

Messrs. Kimbrough and Dodson of Dallas were successful bidders for the Alvin brick plant, which was sold recently by Receiver S. Jones for $1,500.

The Hugo Commercial Club has succeeded in landing a big brick plant at Oklahoma City, Oklahoma. The plant will have a capacity of 30,000 per day and will be one of the largest in eastern Oklahoma.

## THE MIDDLE STATES.

Des Moines is being permanently and effectually advertised all along the line of the new Milwaukee extension to the Pacific coast, a stretch of over 1,000 miles, by the Flint Brick Company, of Des Moines. Flint brick are being used for the platforms of every station along the line and the word "Des Moines" is impressed in the face of each. In that way the Milwaukee is constantly forcing the attention of thousands of travelers upon the City of Certainties. Train loads of the brick have been shipped from Des Moines to fill this big contract with the Milwaukee. To the Des Moines man each brick seems to bring a message from home.

The Garden City Sand Co., 708 Chamber of Commerce Bldg., Chicago, have a desirable piece of shale property consisting of 60 acres on the Rock Island near La Salle, Ill., which they desire to sell.

Jasper N. Thompson, who was injured by an explosion of dynamite in the shale pit of the Crawfordsville, Ind., Shale Brick Co., brought suit against the company for damages to the amount of $10,000. He claims permanent injury, as a result of the explosion, including the loss of one eye and injury of the other, and also great pain in his head.

The brick yard at Manteno, Ill., will retain most of its men when the plant closes for the winter, to make repairs and install new improvements—among which is the Penfield patent, which will necessitate the raising of the entire kiln shed. They expect to have everything made over in first class condition before spring opens.

Workmen will tear down the old brick drying sheds in the Stipes brick yards, east of the Cunningham road, Urbana, Ill., preparatory to installing the new brick drying machinery, which with other machinery will cost approximately $25,000. New buildings will be erected and the new machinery installed so that with the opening of the spring season the making of brick can be resumed. After this the weather will make no difference in the manufacture of brick at the Stipes yards.

## FROM THE NORTHWEST.

St. Paul, Minn., Jan. 3.—The figures of the building inspection department of Minneapolis for 1910, show a nice gain for the year, and an excellent comparison through the year. The figures are: $14,336,460 for 1910 and $13,092,390 for 1909.

St. Paul totals fall behind the very heavy record of last year, but are well ahead of all other recent years. The totals for the past two years are $10,053,011 for 1910, while 1909 was $12,089,449. The Builders' Exchange of St. Paul will hold their next meeting and banquet at the Hotel St. Paul. A program is being arranged and several well known speakers will be provided. The officers for the ensuing year will also be elected.

The date is not positively decided, but it will be within a short time. The entertainment committee expects to make this meeting one of exceptional attraction and anticipates a large crowd.

It is rumored that another brickyard will be started at Wahkon, Minn., in the spring.

John De Y. Smith, who has a farm adjoining the townsite of Timber Lake, S. D., has been exprimenting with a deposit of clay found in a portion of his land, with the idea of making brick of it. The last batch of brick that he burned appears to be nearly perfect and he intends to install machinery and go into the business on a large scale. The discovery is an important one for this town and vicinity, as there will be a lot of building here next year and many business buildings will be erected of brick.

In a recent communication from F. Lehmann, Portland, Oregon, he says the brick situation is very progressive in his locality. He has recently established a mosaic tile works for manufacturing tile and terra cotta. Water power is used and the burning is done with oil. The machines and the three kilns are of the company's own design. The transportation facilities include steam and electric roads and the river nearby.

The Lewis Investment Co. have taken out a permit for a three story brick-veneer apartment house, to be built at the north-west corner of 17th and Lovejoy streets, Portland, Ore., at a cost of $430,000.

As there will be a great demand for brick during the next few years at Rawlins, Wyo., an effort is being made by the citizens to establish another plant there. Rawlins has the best materials for brick making to be found in the state, and they claim brick can be made for little more than the freight now costs on brick shipped in from Colorado.

The British steamship Beachy, under charter to the Robert Dollar Company, took on board at Seattle, Wash., 500 tons of brick for Manila.

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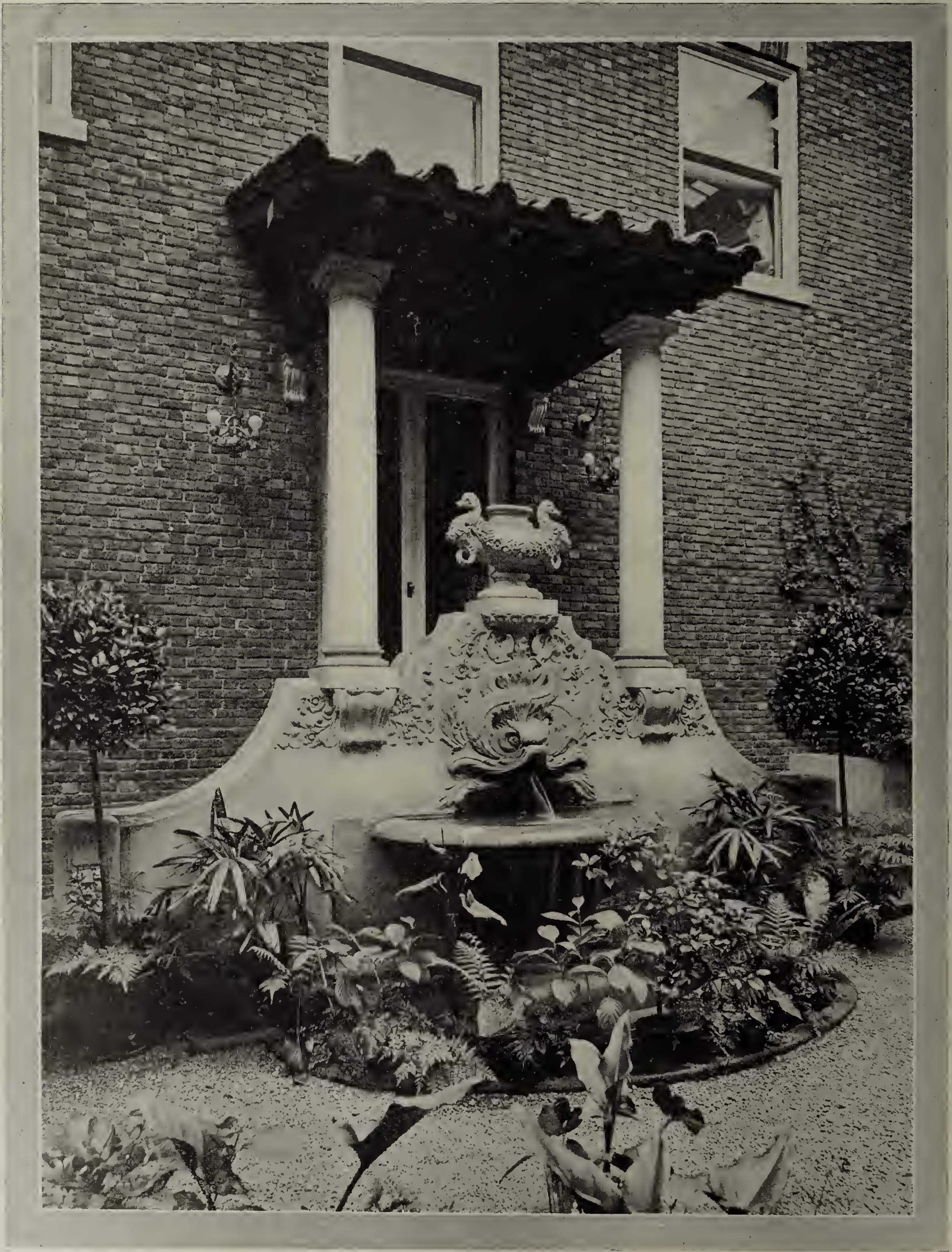

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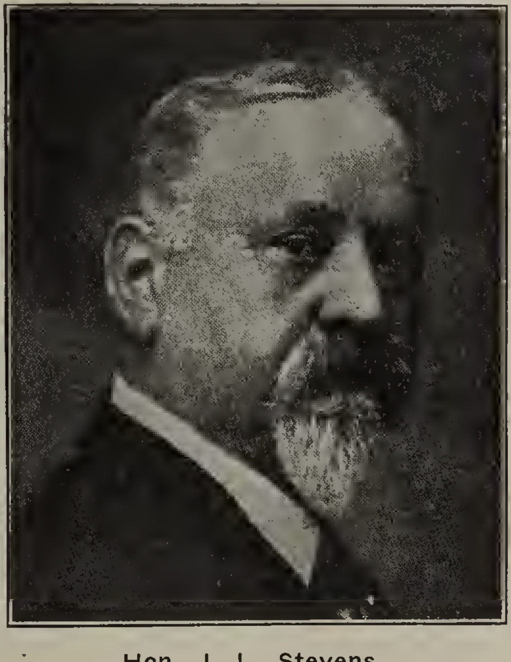
BRICK AND CLAY RECORD
VOL. XXXVIII—NO. 3
FEBRUARY 1, 1911

# THE HAWKEYE CONVENTION

## Iowa State Association Shows Its Enterprise by the Organization of a Western Drain Tile Bureau and Endorsement of the National Clay Products Show

This has been a winter of development in association work and new plans have been inaugurated for the promoting of clay products which are sure to materialize into practical benefits to the clay working interests of the country. It is fitting that Iowa, the leading drain tile state of the union, should lead in all movements tending toward the advancement of drain tile and drainage interests. The Iowa Brick and Tile Association during its thirty years of existence has ever shown a spirit of enterprise and progress greatly to be commended and its last convention held at Boone, Ia., Jan. 25th and 26th, proved perhaps the most momentous and important of all annual gatherings. The executive committee in charge of this convention determined to make it as useful as possible to the clay interests and gave it the name of the "Clay Boosters Convention" and the event proved true to its name in every particular.



Hon. J. L. Stevens,
Retiring President of the Iowa Brick and Tile Association.

The manufacturers of paving brick found it of advantage to establish an organization of their own active working forces with permanent headquarters to take care of their interests in carrying on a campaign of education throughout the country in behalf of brick paving. The sewer pipe manufacturers have also established a bureau of their own for the purpose of carrying on their publicity work. The same is true of the manufacturers of building brick through the organization of the Building Brick Association of America. The same action was taken by the manufacturers of floor and wall tile, all of these separate bureaus or associations having the same purpose in view. It is, therefore, quite in line with progress that manufacturers of drain tile should unite on some practical cooperative effort by the establishment of a bureau of their own, the purpose of which should be to promote the interests of farm drainage and the use of clay drain tile, and certainly the Iowa association did its duty in initiating the movement at its last convention. The association gave the plan a hearty endorsement and the membership roll was started, which has already been signed by most of the leading drain tile manufacturers of the state of Iowa and which will doubtless be subscribed to by the manufacturers of tile in other Middle West states.

The Western Tile Drainage Bureau is organized as a Middle West proposition and its purpose is to promote the interests of all the clay tile manufacturers of that section regardless of state boundary lines. The subscribers to this movement agreed to pay the small sum of one-third of one per cent for each two thousand pounds of tile marketed. The fund created by this assessment is to carry on the work of publicity as outlined in the prospectus and as shall be directed by the advisory board. This board will consist the first year of H. A. Rawson of Des Moines, F. E. Keeler of Mason City and George Schnurr of Kalo, all representative Iowa tile manufacturers, and hereafter at the annual meetings selections for membership on this board shall be made up from the membership in each of the states taking part in the movement. The board will select an active manager who shall have charge of the work of the bureau in carrying out the plans of the board. A more complete synopsis of the scope of the bureau appears subsequently in this report.

### Other Clay Boosts.

In addition to the establishment of this bureau, the Iowa Association gave its hearty approval and endorsement to the National Clay Products Exposition to be held in Chicago next year. It was the unanimous sentiment of those present that this plan for a clay show to demonstrate to the public the superiority of all forms of burned clay products, would be of the greatest benefit to the clay interests and it is certain that the drain tile manufacturers will take advantage of the opportunity offered by such a show to arouse interest in farm drainage and thereby promote public interest in the increased use of drain tile.

The convention listened with interest to the talk given by Mr. Wood representing the Building Brick Association of America and gave hearty endorsement to the work being carried on by this association, other speakers taking part in the discussion giving their arguments in favor of the movement, bringing forth much enthusiasm. A number of new members of the association were enrolled during the convention.

### A Unique Convention.

The meeting at Boone differed from all conventions of the assocation previously held. Not a single technical paper was included in the program. Only publicity subjects were scheduled and these had particular reference to the "boosting" of the various forms of clay products, thus carrying out the intent of the gathering, nevertheless, several important and interesting addresses were delivered and on Thursday afternoon when the delegates made a trip to Iowa State College at Ames, they had the pleasure of listening to several specially prepared papers presented by the faculty of that institution. The association was particularly fortunate in selecting Boone as a meeting place. This is distinctly an Iowa town; neat, attractive and interesting. The president of the association, Hon. J. L. Stevens was a most royal host and he and the members of the local reception committee made the delegates feel at home and took particular interest in their welfare and entertainment. The Hotel Holst is a fine example of brick architecture, commodious and well arranged and the visitors found it a most pleasant headquarters. The convention sessions were held in the City Hall.

### The New Officers.

During one of the early sessions, a cordial invitation was extended by the city of Fort Dodge through Mr. C. F. Green for the association to hold its next annual convention in that place. Mr. Green's invitation was so cordial and pleasantly worded that the members spontaneously voted to accept but later, upon reconsideration, it was decided best to continue the plan which has prevailed in previous years, to leave the matter for the decision of the executive board.

A Group of Iowa Clay Workers.

As evidence, however, of Mr. Green's personal poularity, he was unanimously elected as president of the association for the ensuing year. H. R. Straight of Adel was made vice president, C. A. Reaver of El Dora, treasurer and Mr. C. B. Platt of Van Meter was re-elected secretary, this being in recognition of the faithful service which he has rendered the association during the past years.

### The Convention Sessions.

The sessions were opened on Wednesday morning by Judge Stevens who addressed the members as follows:

Our secretary has placed opposite my name a somewhat lengthy statement of the subject of my address. I haven't read it through, but I observe that he says I will tell you of the commercial conditions existing in the clay trade in the older clay-products-using countries of Europe. Now, before I get through I will say something about the old country, but I will not undertake to tell you about all their commercial conditions. It would make my address too long if I should attempt to cover that and other things that I should say.

Our program this year is an innovation. You will observe the words "booster" and "boosting," as well as the absence of a list of names with a subject set opposite. I assure you that this was intentional. The executive committee thought it best to have a free-for-all, so as to encourage every one to express himself freely on the subject of burned clay and its products and their uses with a view of encouraging these uses.

Certain facts deserve our consideration. They have been set forth by the Building Brick Association of America in several of their publications. This association has for its object the promotion of the use of building brick and the general welfare of the building brick business. The association was originally organized as the Clay Products Association of America in 1910. Any person, firm or corporation interested, whose application is approved by the membership committee, may become a member by payment of the prescribed fees. These fees are based on the business that they are engaged in—whether material men or manufacturers, and if manufacturers, the extent of the business carried on, the extent of production and the character of it. You will get all necessary information by examining their publications.

The association has mapped out a certain line of work which is very important to all who are engaged in the manufacture of clay products. First, the publishing of a series of convincing arguments setting forth the enormous fire losses in America, where wooden construction prevails, and the comparative freedom from those losses in Europe, where nearly all construction is of brick. This is a very important subject, not only to the brickmaker, but to the man who lives in a wooden house. It is just as important to the tenant as to the landlord, for the landlord must make up from the tenant the losses he sustains by paying for more insurance on the wooden structure and the probability of loss. The freedom from repairs on a brick house as compared with the continual repairs on a wooden house. The value of a brick house as an asset compared with the decreasing value of a wooden house. Then they propose the compilation and publication of books containing plans and specifications for brick structures, for the purpose of enabling those contemplating the construction of homes to see how beautiful and serviceable a brick house can be made.

Now, of course, the great object of this work is to educate the public by presenting actual figures and the real facts about the value and advantages of brick. Every member of this association, whether he is manufacturing paving or face brick, tile or hollow brick, is interested personally and selfishly in the success of this association.

It is not only a selfish motive that prompts us to encourage the use of brick, but it is a good motive. Anything which will benefit ourselves and the public generally is worthy of the highest consideration. This association a good many years ago began a work which has benefited Iowa to the extent of millions of dollars; and they began it the same way that we now propose to begin pushing the interests of brick. This association began to make public the arguments in favor of tiling the ground, and has added millions to the value of Iowa. In opening this convention I desired to lay particular stress upon this Building Brick Association of America, because it has a comparatively new and a most systematically planned arrangement for disseminating the information that we desire disseminated—in other words, of informing the public of the best arguments in favor of the use of brick.

Some of the Live Machinery and Equipment Men at the Boone Convention.

Conventioners in Front of Hotel Holst, Boone, Ia.

We have been accused of being the slowest and most conservative people on earth, we people who manufacture brick, and I don't know but what it is true, in a way. We certainly know that the cement manufacturer, compared with us, is very swift of foot. He gets his arguments before the public many times where we get ours once. We cannot blame him; and he will be friendly to us in the encouragement of the use of brick when he discovers that in the countries where the most brick are laid the most cement is used.

When the brickmaker succeeds in selling brick to a man to put up a brick house, it is certain there will be more cement used in it than there would have been if it had been a wooden house. We don't care how much we help the cement maker, but we want to help ourselves, and no longer be accused of not taking sufficient interest to advertise the advantages of brick construction. So I say that it is time that the brickmakers should place the public in possession of all these facts; and this association, in the publication of what they call "Brick Talks," is taking an advanced step, and we should encourage it to the best of our ability. The manufacturer or seller of material who becomes a member of the association is entitled to all their advertising matter at half the price that any one else pays for it. He is enabled to get his printing done in fine shape and the results of the efforts of the best architects in the country for a song. So that there is really no reason for not all becoming members of that association.

Before I leave this topic I wish to call attention to a few of the facts in these publications. Here is the fact, as shown by the government reports, that in 1907 $450,000,000 was paid for the losses by fire in the United States —a sum greater than all the production of gold, silver, copper and petroleum products in this country for that year. It really equaled the value of all the property of several of our smaller states, like Florida, Idaho, Delaware, Maine or a half-dozen others. In that year the fire loss, distributed all over the United States, amounted to about $2.30 per capita. In the same year it was 33 cents per capita in Europe. That is the difference in the tax which a man pays for living in a wooden house instead of a brick, because you might travel all over Europe for a year and not see as many wooden houses as you see in this town. They show that the use of lumber for the purpose of building houses in America amounts to 500 ft. per capita every year, and in Europe only 60 ft.; and many other facts which are not only interesting and instructive, but are the strongest possible arguments to influence a person who is about to construct a building.

In reference to the commercial conditions of the brick and tile business in Europe I can say this: The very fact that everything there is built permanent and practically fireproof, and almost universally of burned clay, is sufficient reason for expecting to find the brick business in a prosperous condition and a permanent industry all over that country. They had their period of wooden houses; they used up the timber and then turned to brick, and have followed it up. It is true that in Germany there is quite a competition between the users of cement and of burned clay, but I noticed when fine buildings had artificial stone on the face it was laid on brick. They do not attempt anyhere, so far as I observed, to lay up what is called the cement block. They may do it, but I did not observe any of it, and I did observe millions of dollars worth of buildings going up in the large cities where there was more or less cement used on the outside in putting on the rough cast or pebble dash or the artificial stone, and it was always on a solid burned clay wall. So that was enough to satisfy me that the industry would prosper if the country was prosperous.

I also noticed that the manufacturers have a more diversified product in all those countries. For instance, nearly every brickmaker was making tile shingles and tile for floors and coping and chimney tops, and various things that go into the building trade. In all, I made an inspection of some twenty or thirty plants, and it was very interesting to look into the clay pits where for many generations the raw material had been dug, and to go through factories where those products have been manufactured for centuries; to drive with a taxicab or other means of conveyance for hours, looking for a wooden house in vain, and travel a month and see very few; to see the finest artificial cement stone invariably laid on a brick wall instead of moulded and laid in stone; to see the brick walls erected before the Christian era standing as firm and solid as when constructed beside the crumbling stone and marble. All this was enough to satisfy me that the business of manufacturing brick and all kinds of clay products is a permanent industry and bound to become as universal in this country as it is in the old country. It is only a question of the advantages of brick as a building material becoming known.

It was a natural thing for us in this country, when it was first settled, with cheap and available timber, to use wood; but it is different now. Then it was a matter of first cost. But the matter of first cost will not hereafter be the only thought; it will soon cease to be an argument in favor of wooden houses. In fact, it would not be an argument now if the young men of this country realized how rapidly the art of laying brick can be acquired, or if the mason's trade was as common an avocation as it is in England and on the continent. There ought to be a trade or vocational school in every county in this and every other state in the Union. These schools would afford every boy and girl the opportunity to receive training in some trade. Many of our brightest and best young men are being compelled to elect between leaving school or taking some study which appears to them to be a waste of their time. This aversion is usually because of lack of aptitude on their part, or because the study is not related to or underlying the vocation they seek. I would rather have the judgment of a majority of the young men who know what they desire to accomplish as to whether the study of higher algebra, for instance, will be a waste of time for them, than to have the judgment of the ordinary teacher on that question. A young man with a common school education and any useful mechanical trade well learned, at twenty-one years of age, stands a better chance of acquiring a liberal education and a competence at thirty-five years of age than the young man who has graduated at the university without any definite aim in life; because such young man has not really secured a liberal education; he has merely secured

The Plant of the Boone (Iowa) Brick & Tile Co., of Which Hon. J. L. Stevens Is President.

his marks; he is merely accredited. Within five years he knows nothing of his Latin, German, algebra or calculus, unless he has studied them for a purpose. clay industry. This clay industry lies at the foundation of the construction of every permanent building in this or any other country. Every permanent structure is based upon the industry which we represent. The world has no better monuments erected by man than those that are of burned clay, and instruction in the development and improvement of an industry which lies at the foundation of good construction is second only in material importance to the production of food and raiment.

I thank you, gentlemen, for your attention.

Following Judge Stevens, an interesting talk was given by Prof. S. W. Byers regarding the work being carried on at Ames College in behalf of the clay interests of the state. The drainage investigation work which has been conducted at this institution has been of vast benefit to the drain tile interests and the college has done much toward increasing a demand for drain tile through the arousing of interest in drainage among the farmers. The college has also developed and endorsed the construction of silos from clay blocks and this new field should afford an increased market for clay manufacturers as it is certain that the Ames silo will become the popular form of construction with this necessary adjunct for up-to-date farms throughout the country. The ceramic department recently established at Ames has already shown its value and will be an important factor in the development of clay interests.

On Wednesday afternoon Mr. Platt, the secretary, presented the project for the Western Tile Drainage Bureau and presented the plans and prospectus for such an organization, which was heartily endorsed by the convention. The outline of the plan for the new organization is as follows:

### Western Tile Drainage Bureau.

It is proposed to establish this bureau with a membership made up of Clay and Tile Factories in the States of Iowa, Minnesota, Illinois and Missouri and to extend the field as the situation would seem to warrant.

### Its Object.

First. To do any and all proper things to thoroughly fix in the minds of tile users the absolute non-destructive properties of clay tile and to conduct a campaign of education with the view of creating a new demand by showing: What constitutes thorough drainage; its cost; why drainage of hills pays; why all farming lands should be tiled; what sizes of tile should be used; how a system of drainage should be planned; the importance of engineering advice; small drainage projects; simple rules for laying tile; work which has been accomplished, and the profits derived therefrom.

To publish booklets and folders on the above subjects prepared in a plain, practical style by expert land drainage engineers, practical farmers and government experts and to secure a thorough circulation of such literature amongst farmers and land owners and to do any and all things advisable to make generally known the marked advantages and profit in the use of clay drain tile.

Several speakers followed him, all giving their hearty approval to the plan.

Handsome Home of J. B. McHose, Boone, Ia. An Unusually Fine Example of Brick Residence Construction.

A very interesting address was made by D. A. Wrightman of Des Moines, secretary of the Iowa Manufacturers' Association, who covered the work of his association so far as same was of interest to clay products manufacturers This organization has been of great benefit to the state in looking after the manufacturing interests. Mr. Wrightman dwelt at some length on the subject of railroad rates, a matter of vital interest to the clay men.

Thursday morning was devoted to the discussion of the work of the Building Brick Association of America, the talk being opened by Mr. Wood, of Indianapolis, representing that association. This led up to further enthusiastic talk from various members along the line of "Boosting Clay Products."

One of the most interesting talks before the convention was the address given by Mr. H. R. Straight of Adel, Ia. on "Brick Construction." Mr. Straight is one of the best informed men in the trade and his papers always make important additions to clay literature.

President Stevens appointed the following committees:

Legislation Committee.
J. B. McHose
D. F. Morey
C. A. Rawson
C. F. Green
D. W. Stockey
W. H. Brecht

Resolution Committee.
C. W. Lansing
F. N. Clutter
T. J. Corey
D. W. Stockey

Nominating Committee.
C. A. Rawson, Des Moines.
C. F. Green, Sioux City
W. S. Shutts, Centerville
D. F. Morey, Ottumwa
H. R. Straight, Adel
S. M. McHose, Nevada
D. A. Potts, Mason City
John Gethman, Glad Brook.

### The Trip To Ames.

Two special cars over the Interurban Road, provided free of charge to the association by the Boone Commercial Club, carried the delegates to Ames on Thursday afternoon. After passing through several of the magnificent buildings of the Iowa State College, the visitors gathered in the assembly room of the college of engineering where the final session of the convention was held. The association was particularly honored by the presence of Dr. Edgar M. Stanton, president of the Ames College, who gave the members a hearty welcome and delivered an address of much interest regarding the work of the great institution, of which he is the head. Some 1,800 students are now studying at this university, requiring the services of 180 instructors. The college buildings are of the most substantial character and occupy a beautiful site in the center of an experimental farm of 700 acres. Over $1,600,000, has been expended in buildings and improvements at this college since 1900 and the state has showed a very liberal policy in developing the institution along the various lines of its activity. One of the latest features in this establishment is the ceramic department and the setting aside of a considerable portion of one of the new buildings for the use of this department. Preparations are being made for a complete equipment which will permit practical instruction in all branches of ceramic work.

Following President Stanton, the convention was addressed by Mr. G. G. Wheat of Emmettsburg, Ia., a gentleman whose name has become very prominent of late years through his investigations regarding the life of Portland cement and its fallibility under certain conditions, particularly its unadaptability for the manufacture of drain tile. Mr. Wheat has taken great interest in the promotion of drainage interests and presented some important facts relating to the needs of drain tile in the state, particularly as to the desirability of new laws governing large drainage projects. Mr. Wheat included some very important statistics in his address, from which it was shown that at the present time Iowa is only about one-fourth drained. This would indicate that there is yet a large and profitable market in Iowa for drain tile for many years to come.

Following Mr. Wheat, the convention listened to a short talk by Prof. W. H. Stevenson, who has charge of the drainage investigations carried on by the state through Ames College in connection with the U. S. Dept. of Agriculture. He also read the recommendations of the investigating board which will be made to the state regarding drainage laws development.

Building of Ceramic Department, Ames (Iowa) College.

Prof. A. Marston gave an interesting talk regarding the needs of standardization of drain tile through the perfection of the tile testing machine and its general adoption by the authorities. Ames College has taken a very advanced position in this matter and has in operation a testing machine which has demonstrated the necessity for standardization and the maintenance of a high standard by manufacturers. At the close of Prof. Marston's remarks a resolution was offered endorsing the plan and favoring a state law to cover the subject.

Prof. M. C. King, who is an experimental engineer at the college told of the perfection of the Ames silo and illustrated his remarks with stereopticon views showing the features and methods of construction of this new form of silo. Mr. King has made of this subject a very thorough study and has demonstrated that the only practical and perfect silo should be built of burned clay blocks. He is able to show in actual figures that this form of construction is no more expensive than that of wood silos and is far more economical and satisfactory while considering the durability and length of service it is shown to be far cheaper than any other form of silo construction. A bulletin fully describing this silo is published by the college and will be sent to anyone upon request.

Artistic Use of Brick in Hotel Lobby, Holst Hotel, Boone, Ia.

The convention was also addressed by Prof. R. A. Williams who is in charge of the new ceramic school established at the college.

Following this interesting program, the visitors were shown about the other buildings of the college and found particular interest at the ceramic school and the testing room which was practically demonstrated to them through testing several tiles. A 12 in. tile 1 ft. in length was shown to withstand a pressing test of upwards of 3,600 lbs.

Before the visitors left Ames, they were entertained by a special concert given on the famous Ames College chimes.

### Pleasing Entertainment.

On Wednesday evening the delegates were entertained by the local committee with a special entertainment provided at the Aire Opera House. This included in addition to the regular program a series of interesting pictures of Iowa clay plants, one of them being a moving picture film illustrating the operation of the Penfield brick setting system.

### Report of Committee on Resolutions.

I.

Resolved, That the association extend to President Stevens, the local committee and all others of the city of Boone, who have extended to those present so many courtesies, their heartfelt thanks and full appreciation for the kind treatment received.

Resolved, That the college at Ames, and those of the faculty interested and so largely assisting in clayworking and kindred industries, are entitled to the thanks of this association; that their labors, including practical demonstrations during this session, have been of the utmost value.

II.

Whereas, The state of Iowa maintains at Ames, a college for the promotion and advancement of education in agriculture and the mechanic arts; and

Whereas, The clayworking interests of the state have attained such proportions as to entitle them to a fair share of the consideration and support of those vested with authority in matters of education; therefore, be it

Resolved, That this association appoint a committee to appear before the finance committee and the board of education to make an appeal in behalf of the association for the continued support by the state of the ceramic department at Ames and extension of its scope, to the end that this department be placed on a par with instruction in agriculture and other lines of industry, and that the state establish and foster vocational schools.

IV.

Whereas, The time has come when, in the interests of the great drain tile industry, some practical and concerted action should be taken by the drain tile manufacturers to further promote the development and progress of tile drainage for the purpose of creating a larger demand for the product of our tile plants; and

Whereas, It is the sense of this association that the plan presented to this convention for the organization of a Western Drain Tile Bureau, to be maintained by the drain tile manufacturers upon the basis of an assessment of one-third of one per cent per ton of tile products, meets our approval; and

Whereas, This association has throughout its history led in all movements directed in behalf of the drain tile interests; therefore, be it

Resolved, That this association gives its hearty and unqualified support to the plan proposed and urges every member manufacturing tile to join in the movement, by enrolling in the membership of the Western Drain Tile Bureau.

V.

Resolved, That this association indorses the movement inaugurated by the Building Brick Association of America in its educational campaign to popularize and extend the use of brick as a building material, and appreciates the work already accomplished by that association in the production and distribution of literature which has been of practical value and aid in extending their work.

Officers of the Boone Convention. On the Left, C. B. Platt, Secretary; Center, W. A. Newcomb, Treasurer; on the right, J. L. Stevens, President.

VI.

Resolved, That this association gives its hearty approval to the plan inaugurated at the recent Chicago convention for the establishment of an annual Clay Products Exposition, on the lines of the National Cement Show and Electrical Exposition, and we offer the promoters of the movement our enthusiastic co-operation.

### The Delegates.

The convention was very well attended and was strictly representative of Iowa's leading clay interests. The machinery and equipment men were as usual on hand in goodly numbers and added much to the life and zest of the occasion. The J. D. Fate Co., Plymouth, O., was represented by that popular machinery man, Mr. Geo. Drennan, secretary and treasurer of the company, and by H. Votaw, the company's salesman. H. Brewer & Co., of Tecumseh, Mich., were represented by Davis Brown and R. Smith; Chambers Bros. Co. was represented by E. R. Frazier of Chicago; The American Clay Machinery Co., by G. C. Stoll, a man who is greatly interested in the affairs of the various state associations and who is always present at their conventions. The Manufacturers' Equipment Co., of Dayton, O., a new enterprise, was represented by I. M. Justice; The Chicago Retort & Fire Brick Co., by G. S. Dieterick and the Mexico Brick & Fire Clay Co., by J. A. Glandon. E. M. Freese & Co., of Galion, O., was represented by E. L. Hess of St. Louis, a man well known and popular throughout the trade. The Main Belting Co. was represented by G. E. Neddleton; The Thew Automatic Shovel Co., by C. J. Thompson; Tate, Jones & Co., the oil burning system, by G. E. Luce. The American Fabric Belting Co. was represented by W. O. Tourtelot.

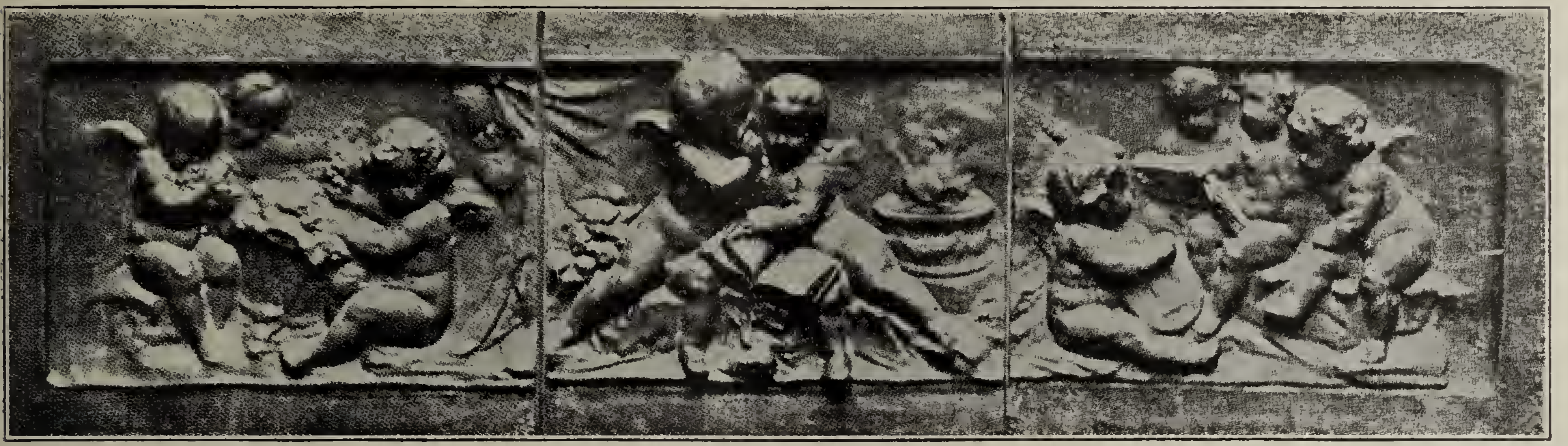
The Eagle Iron Works, which has taken a prominent position in the clay industry of the Middle West from Indiana to Colorado, in connection with the manufacture of dry pans, was represented by the head of the company, Mr. P. Aulman. The Globe Machinery & Supply Co., of Des Moines, is well known as one of the leading clay manufacturing supply houses of the Middle West and has a large amount of business in this field both in drier cars and the various supplies and equipment required by clay working plants, and they were represented by Mr. A. J. Dickey, sales manager, and by C. L. Buxton. The Iowa Machinery & Supply Co. was represented by J. L. Purington, and the Independent Powder Co., by C. F. Foley; the Brown Instrument Co., by C. E. Merry and the Sawyer Belting Co., by Messrs. W. Reese and E. Dietrich, those two live-wire salesmen who made themselves so popular at the big Chicago convention. The Sawyer Belting Co. have started in to make every man in the clay business fully acquainted with the strong features of Sawyer belting and its particular advantages in connection with the requirement of clay products manufacturers, and the company will be strongly represented at the Louisville convention.

Following is the complete roster of the convention:

### ROSTER OF IOWA CONVENTION.

| No. | Firm | Rep. | Town |
|---|---|---|---|
| 1 | Boone Brick, Tile & Pav. Co. | J. L. Stevens | Boone |
| 2 | O. Wilson | | Barnes City |
| 3 | Sioux City Brick & Tile Co. | C. F. Green | Sioux City, Ia. |
| 4 | J. D. Fate Co | H. J. Votaw | Plymouth, O. |
| 5 | C. E. Travis | | Sioux Rapids |
| 6 | Corwith Brick & Tile Co. | I. G. Holdridge | Corwith, Ia. |
| 7 | Dealers' Record | F. M. Clutter | Chicago |
| 8 | J. B. McHose | | Boone |
| 9 | Creston Brick & Tile Co. | H. L. Tramp | Creston |
| 10 | Walter Newcomb | | Corning |
| 11 | Centerville Brick Co | W. S. Shutts | Centerville |
| 12 | H. Brewer & Co | R. Smith | North English |
| 13 | Am. Clay Machinery Co. | G. C. Stoll | Bucyrus, O. |
| 14 | Garrison Brick & Tile Co. | C. C. Gross | Garrison |
| 15 | James Campbell | | Lehigh |
| 16 | F. D'Antremount | | Monticello |
| 17 | H. Britting | | Monticello |
| 18 | B. Koeler Co. | | Geneva, Neb. |
| 19 | H. Melcher | | Geneva, Neb. |
| 20 | Gethman Brick Co | Jno. Gethman | Gladbrook |
| 21 | The Mfrs. Equipment Co. | J. M. Justice | Dayton, O. |
| 22 | Vincent Clay Products Co. | G. E. Goldner | Ft. Dodge |
| 23 | Buffalo Center Tile Co. | E. D. Buckman | Buffalo Center |
| 24 | Mexico Brick & Fire Clay Co. | J. A. Glandon | Mexico, Mo. |
| 25 | Jno. Dawson Co. | | Fremont |
| 26 | Thos. Dawson Co | | Center Junction |
| 27 | Chicago Retort and Fire Brick Co. | G. S. Deiterick | Chicago |
| 28 | Eldora Paving & Tile Co. | C. O. Reaver | Eldora |
| 29 | Eldora Paving & Tile Co. | R. M. Scott | Eldora |
| 30 | Main Belting Co | G. E. Nettleton | Mason City |
| 31 | Thew Auto. Shovel Co | C. J. Thompson | Lorain, O. |
| 32 | Algona Brick & Tile Co. | C. R. Madson | Algona |
| 33 | Straight Bros. Co | L. W. Pearson | Spencer, Ia. |
| 34 | Straight Bros. Co | F. W. Straight | Spencer, Ia. |
| 35 | Miss Nash | Stenographer | Des Moines, Ia. |
| 36 | J. A. Wilson | | Dows, Ia. |
| 37 | J. A. Conger | | Goldfield, Ia. |
| 38 | Tate Jones & Co | G. E. Luce | Pittsburg, Pa. |
| 39 | S. G. Goldthwaite | | Boone, Ia. |
| 40 | H. Brewer & Co | Davis Brown | Tecumseh, Mich. |
| 41 | Davenport Br. & Tile Co. | John Berwald | Davenport, Ia. |
| 42 | Davenport Br. & Tile Co. | A. C. Westerdorf | Davenport, Ia. |
| 43 | Chambers Bros. | E. R. Frazier | Chicago |
| 44 | Boone Clay Works | Jno. Yegge | Boone, Ia. |
| 45 | E. M. Freese & Co | E. L. Hess | Galion, O. |
| 46 | Lehigh Clay Pro. Co | B. J. Whipple | Lehigh, Ia. |
| 47 | Des Moines Clay Mfg. Co. | C. W. Emery | Des Moines, Ia. |
| 48 | J. D. Fate Co | G. B. Drennan | Plymouth, O. |
| 49 | Ft. Dodge Br. & Tile Co. | Wm. Fessel | Ft. Dodge, Ia. |
| 50 | Ft. Dodge Br. & Tile Co. | J. H. Abel | Ft. Dodge, Ia. |
| 51 | Ft. Dodge Br. & Tile Co. | Wm. Kehm | Ft. Dodge, Ia. |
| 52 | Boone Brick, Tile & Paving Co. | F. A. Temple | Boone, Ia. |
| 53 | "Brick" | C. W. Lansing | Chicago |
| 54 | Boone Brick Tile & Paving Co. | L. L. Lindbloom | Boone, Ia. |
| 55 | N. E. Goldthwait | | Boone, Ia. |
| 56 | Bldg. Brick Assn. of Am. | Mr. Wood | Indianapolis |
| 57 | Scandia Brick & Tile Co. | | Madrid, Ia. |
| 58 | Scandia Brick & Tile Co. | F. Tighe | Madrid, Ia. |
| 59 | S. McHose | F. Matson | Nevada, Ia. |
| 60 | N. W. Tile & Clay Pro. Co. | E. B. Persons | Emmettsburg |
| 61 | N. W. Tile & Clay Pro. Co. | G. G. Wheat | Emmettsburg |
| 62 | Monmouth M. & M. Co. | C. W. Shattuck | Monmouth, Ill. |
| 63 | Tama Brick & Tile Co. | C. E. Fleming | Tama, Ia. |
| 64 | Liscomb Brick & Tile Co. | E. P. Smith | Liscomb, Ia. |
| 65 | Tama Brick & Tile Co. | L. E. Bentley | Tama, Ia. |
| 66 | American Fabric Belt. Co. | W. O. Tourtelot | Chicago |
| 67 | "The Clay Worker" | D. W. Stookey | Cedar Rapids |
| 68 | Finkle Brick Co | J. S. Finkle | Marshalltown |
| 69 | Medeapolis Br. & Tile Co. | A. H. Johnson | Medeapolis, Ia. |
| 70 | Medeapolis Br. & Tile Co. | M. J. Johnson | Medeapolis, Ia. |
| 71 | Keswick Br. & Tile Co. | I. B. Crawford | Keswick, Ia. |
| 72 | Dallas Co. Br. & Tile Wks. | H. R. Straight | Adel |
| 73 | Eagle Iron Works | B. Aulman | Des Moines |
| 74 | The Brown Inst. Co | C. E. Merry | Chicago |
| 75 | Colchester Br. & Tile Co. | B. F. King | Colchester, Ill. |
| 76 | T. M. Hill | | Minburn, Ia. |
| 77 | C. McHose | | Maxwell, Ia. |
| 78 | American Br. & Tile Co. | D. A. Potts | Mason City, Ia. |
| 79 | Lehigh Sewer Pipe Co | | Lehigh, Ia. |
| 80 | Barber Asphalt Paving Co. | F. A. Tondrau | Des Moines |
| 81 | Improvement Bulletin | I. J. Covey | Minneapolis |
| 82 | Iowa Mach. & Supply Co. | J. L. Purington | Des Moines |
| 83 | Iowa Pipe & Tile Co | C. A. Rawson | Des Moines |
| 84 | Iowa Pipe & Tile Co | J. O. Reaver | Des Moines |
| 85 | Des Moines Br. & Tile Co. | S. E. Cogswell | Des Moines |
| 86 | Sawyer Belting Co | W. Reese | Cleveland, O. |
| 87 | Sawyer Belting Co | E. Dackert | Cleveland, O. |
| 88 | Iowa Mfg. Association | G. A. Wrightman | Des Moines |
| 89 | Plymouth Clay Pro. Co. | G. M. Elenberger | Ft. Dodge |
| 90 | Prof. S. W. Byer | | Ames |
| 91 | W. H. Shaw | | Grinnell |
| 92 | Independent Powder Co. | C. F. Foley | St. Louis |
| 93 | Martin & Younkm | | New Sharon |
| 94 | M. L. King | Iowa State Col. | Ames |
| 95 | Plant Rubber Co | G. J. Mellor | Minneapolis |
| 96 | Shackelford Brick Co | Geo. Yarn | Des Moines |
| 97 | Enterprise Coal Co | J. A. Cook | Des Moines |
| 98 | Ottumwa Brick and Const. Co. | D. F. Morey | Ottumwa<br>Dows |
| 99 | | F. A. Stephenson | Mason City |
| 100 | Mason City Drain Tile Co. | | |
| 101 | Am. Brick & Tile Co | C. L. Smith | Mason City |
| 102 | Carl Stookey | | Cedar Rapids |
| 103 | Kalo Brick & Tile Co | Geo. Schnurr | Kalo |
| 104 | Boone Clay Works | A. A. Yegge | Boone |
| 105 | Boone Brick, Tile & Paving Co. | J. E. Stevens | Boone |
| 106 | Globe Mchy. & Supply Co. | A. J. Dickey | Des Moines |
| 107 | Globy Mchy. & Supply Co. | C. L. Buxton | Des Moines |
| 108 | B. F. Pay | | Mankato, Minn. |
| 109 | Thos. E. Barton | Thos. E. Barton | Ft. Dodge |
| 110 | C. A. Marshall | | Cresco, Ia. |

Classic Panel Made by the Wheatley Pottery.



# The Wheatley Pottery

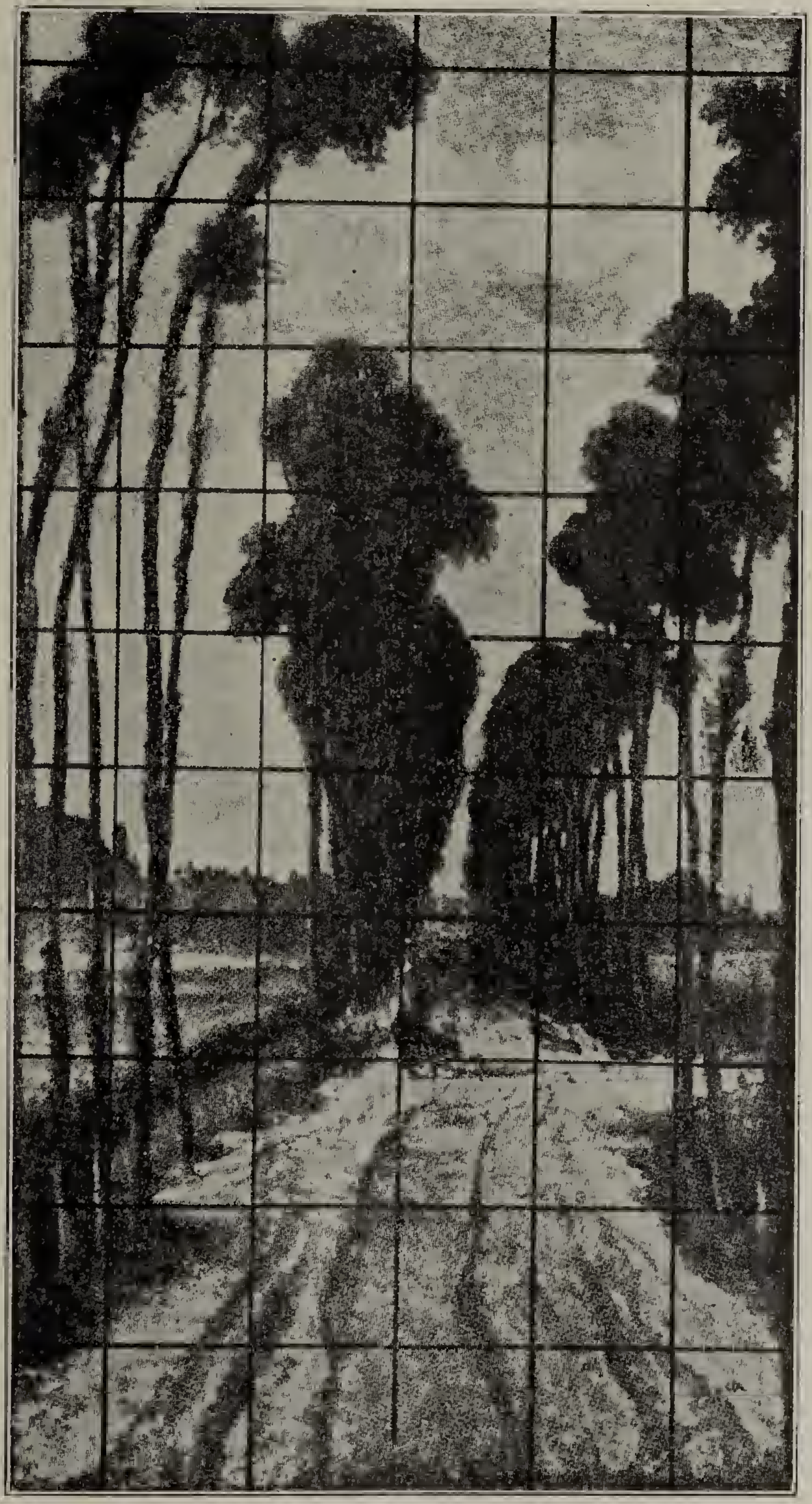
The Wheatley Pottery, Cincinnati, O., has long enjoyed an extensive and enviable reputation for its artistic pottery, notable for its rich, soft and mellow coloring.

Recently this company has turned its attention to the production of tiles for fireplaces, especially—but they are also largely used for walls, floors, etc. The Wheatley tiles like the Wheatley pottery are characterized by the mossy matt blaze which was the result of Mr. Wheatley's experiments and is a distinct relief from the garish effects of ordinary glaze tile. It is a non-polished glaze of velvet mossy-like texture delightfully restful and beautiful, being a real product of art in its highest degree of culture.

Another characteristic in Wheatley faience is the variation.—each tile having a beautiful shade peculiar to itself, but shaded and selected so that the effect en masse is a beautiful symphony of color.

To the layman, it is a matter of wonder and surprise how uncertain even the master-potter is as to the action of heat and the result it will produce on the plastic clay. The amount of contraction and the color of the clay tile is an uncertain factor and always a matter of great uncertainty until taken from the kiln.

The old and trite saying, "No two blades of grass are alike," is equally applicable to the making of tiles —for two tiles of identical material placed in the same sagger, when taken from the kiln show a considerable difference in shade and color,—even the white glazed tile must be sorted into different shades of white. This requires a color expert whose trained eyes can discover at a glance these different shades. To be beautiful it is necessary first of all to be natural, with due regard to the limitations of nature. A failure to recognize this fact often leads inexperienced architects to foist some ludicrous combinations of building material upon an innocent and credulous public.



Hand Painted Tile.

To attempt to match tile precisely, as regards color and size, is to adopt an unnatural standard and tends to produce a monotonous monochrome appearance. The natural variations in the size of tiles calls for a wide joint between the tiles, and too careful matching gives the wall and floor an unnatural appearance.

The Wheatley company are especially adroit in executing original designs submitted to them, even to copying the colors which may be done in water colors in the original designs. For richness, depth and color, no pattern produced by this company exceeds the one known as Autumn Foliage. It is most appropriate for a library or a living room. One could find no more pleasing way to spend a dull winter evening than musing beside such a fireplace, — studying the wonderful coloring, wherein is seen the glow of the autumn sunset spreading its warmth and color over the trees.

Both Mr. Wheatley and his associate, Mr. Isaac Kahn, a Cincinnati artist, are enthusiasts on the subject of tiles and are continually experimenting and bringing out new designs.

## AN ELECTRIC DRIVEN BRICK PLANT.

The Keystone Clay Products Co. manufactures its brick from a red shale, which gives an especially deep red brick. The yard of the company is located on the southwest branch of the Pennsylvania Railroad, about a mile from Greensburg, Pa. The plant is equipped with a re-press but on account of price consideration, the staple product is wire-cut face brick which is demanded by the trade. The daily capacity of the plant is 60,000 but the output is limited to 28,000; the company's yard has a storage capacity of three quarters of a million. Most of the brick is shipped into eastern territory.

The shale is dug in an open pit about 100 ft. from the plant. It is loaded onto clay cars of 2 tons capacity each and dumped into a chute which feeds an 85-ft. belt conveyor leading to the dry pans. There are two 9-ft. dry pans, each gear driven by a 40 h.p. motor running 840 r.p.m. The clay from the dry pans is elevated, screened and discharged into a clay bin immediately above the pug mill. The pug mill is also gear-driven by a 40 h.p. motor running at 840 r.p.m. The augur, directly below the pug mill, and the cutter, which is of the latest American type, are gear-driven by a 75 h.p. motor running at 690 r.p.m. In addition to the machines mentioned, the drying system includes a blower fan belt driven by a 15 h. p. motor and an exhaust fan belt driven by a 5 h. p. motor.

The brick are stacked upon cars alongside the off-bearing belt and transferred to a 10-tunnel dryer. There are seven kilns, six down-draft and one up-draft. These are fired with natural gas. All of the brick-making machinery was installed by the American Clay Machinery Co., and all motors are of the Westinghouse CCL alternating current induction type. The 60-cycle, 3-phase, 2,200-volt current supplied by the local power company is stepped down to 200 volts for the motors.

Dry Pan Driven by a 40 h. p. Motor Running 840 r. p. m.

Economy in the manufacture of brick has been effected at the Keystone yard by 1st, the reduction of power cost; 2nd, by a more elastic and independent arrangement of machinery; 3rd, by the elimination of a large percentage of the manual labor in the handling of the material.

The application of electric drive has been of very material assistance in accomplishing these results. The power is purchased from the West Penn Electric Co., and the rates are quite reasonable, as a proposition of this kind is of mutual advantage to both user and power station company.

There are intervals when part of the machines can be shut down without decreasing the output of the plant, and this results in a saving of power and wear in the machinery. Individual drive permits the most practical and efficient arrangement and location of the various machines.

Electric drive offers many incidental advantages which are difficult to capitalize as a general proposition, and each case should be analyzed to establish these additional merits. Economy of operation in many brick plants has been accomplished by electric drive, and progressive companies cannot afford to neglect the consideration of this subject as applying to their conditions.

Pug Mill Driven by 40 h. p. C. C. L. Motor Running at 840 r. p. m.

## A WESTERN VISITOR.

Mr. O. K. Edwards, manager of the Pacific Face Brick Co., Portland, Ore., has been making an extensive trip through Ohio, Indiana and Illinois, where he visited the representative clay plants, paying particular attention to methods of mining clay and coal. While in Chicago, on his return trip, he visited the plants of the Illinois Brick Co. to investigate the workings of the Penfield patent with a view of installing one in his Oregon plant.

## A LABOR SAVER.

Above is the title of a regular trade publication issued by the Stephens Adamson Mfg. Co., of Aurora, Ill., and its issues contain many facts of interest to the clay working fraternity. No. 33 of this publication contains articles on efficiency in screening, an article on belt conveyors, another entitled "A Unique Storage System" and many facts relating to conveying and screening which are well worth reading. Copies of this publication will be sent to anyone upon request to the above address.

## A MEMORANDUM CALENDAR.

The C. K. Williams & Company, dealers in dry colors and fillers, Easton, Penn., have introduced an innovation in the calendar line, by the introduction of space for memoranda on each date, making it extremely useful to the busy office man.

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The Northwestern Brick Co. has been incorporated at Wichita Falls, Texas, with a capital stock of $100,000.

# THE BADGER CONVENTION

## Wisconsin Clay Products Manufacturers Gathered at Milwaukee Decide to Boost Clay Products through the Erection of a Model Brick House as a Permanent Exhibit at the State Fair

The Wisconsin Clay Manufacturers' Association held a successful convention at Milwaukee, Feb. 1st, 2nd and 3rd, headquarters being at the St. Charles Hotel. In line with the movement toward boosting clay products, the principal work of the convention was along that line and the Badger State men took a very advanced step in determining to erect a model brick house on the Wisconsin State fair grounds, the same to constitute a permanent exhibit and demonstration of the superiority of brick for residence construction.

This idea is an excellent one that could well be followed by brick manufacturers in other states. The scope of the idea could even be extended by making such a building a depository for a handsome display of various kinds of brick and other clay products, and a place for the distribution of literature showing the advantages of burned-clay fire-proof construction.

This model house will be of a size and character which would ordinarily cost about $4,000, such a house as would be erected by the better class of farmers or by a city resident. The material for the house will be contributed largely by members of the association and will be representative of the various classes of brick and other clay ware made in that state. Vitrified brick will be used for the foundation, hollow block for the inner walls and partitions, face brick for the exterior walls, enamel brick for the interior trimmings, terra cotta, floor and roofing tile will complete the clay construction.

The meeting at Milwaukee was interesting and well attended and the program produced many important and valuable papers. A full report will appear in the next issue of "Brick and Clay Record."

Among other important papers presented was the following on the subject of "Recent Tendencies in the Manufacture of Clay Working Machinery" presented by Mr. Davis Brown of H. Brewer & Co., Tecumseh, Mich.

### RECENT TENDENCIES IN THE MANUFACTURE OF CLAY WORKING MACHINERY.

When I was asked by your secretary to write a paper on "Recent Tendencies in the Manufacture of Clay Working Machinery," the thought occurred to me that I could sum up the whole matter in a few words—to devise machinery for replacing hand labor wherever possible and make 'em heavy, but on further consideration it is obvious that that is only a beginning. When we recall the fact that less than thirty years ago most of the drain tile and brick, made by the stiff mud clay process, were made on the plunger type of machine and many of them operated by horse power and that an engine as large as 25 h. p. in a brick and tile factory was the exception, rather than the rule, and compare that with the present power equipment of the modern factory of today, the fact that there has been a great development becomes plainly apparent.

That these changes are going on constantly and at an increasing rate no one can dispute. Being engaged in designing as well as selling clay working machinery, these changes have come so gradually as to be scarcely noticeable, and it requires just such an occasion as this to bring to notice the fact that we are really making rapid progress in the art of clay working and building more or less suitable machinery for the purpose.

The plunger type of machine with the exception of the steam press has been practically eliminated from the business of making brick and tile and we now venture to predict that its days are numbered, in so far as making anything but socket pipe is concerned, for the reason that it is intermittent in receiving its supply of prepared materials and in its delivery, consequently wasteful of time and labor but mainly because the structure of the ware produced by it is not so good as when produced on the auger type of machine now in general use, other things being equal. In brickmaking, the auger type of machine and the stiff tempered clay process is being generally adopted where the material is suitable.

In order to comprehend this situation fully we must remember that there are many and varied conditions which the builder of clay working machinery must meet. In raw materials there is an endless variety with wide differences all designated by the name of clay.

There is the brick and tile factory whose trade demands annually a few side cut brick, some hollow blocks, a lot of drain tile, sizes 3½ to 12 in., then the more pretentious brother who adds the larger sized drain tile and finally the modern plant, making large quantities of wares in endless variety or specializing on brick alone.

In brick making we have factories capable of turning out from 1,000 to 20,000 brick per hour.

The digging, transporting, preparing and converting the material into the finished product becomes a separate and distinct problem in each case, and is an engineering proposition from start to finish requiring intimate knowledge and vast experience and those who contemplate engaging in the business or making extensive alterations or additions, unless endowed with unusual engineering ability and with time to visit a number of prosperous establishments of this character, would do well to engage the services of some reliable engineering concern which makes this business an exclusive specialty. In fact we are informed that a number of clay working establishments engage such service by the year to the mutual advantage of both parties.

As intimated, there not only is a tendency to build machinery heavier, but it is being built very much heavier; but no sooner do we turn out a stronger machine than the purchaser proceeds to double the tax on it, and there you are. One case in mind: The customer, having purchased a heavier machine of a size corresponding to the one he had been using, proceeded to put on two heavy belts, one over the other, to prevent slippage of the belt when the clay was too dry. This machine uses at times as high as a 130 h. p., while duplicates, in various parts of the country are being operated with 30 to 50 h. p., depending on the size and quantity of output and character of clay used. That a serious breakdown has not yet been recorded is probably owing to the fact that the safety factor of this machine is high and the engine will not develop any more power. It might be appropriate to mention here that your humble servant is at present engaged in the task of trying to design an unbreakable machine and hopes, if spared for another decade, to be able to show progress in that direction.

That there is more room for improvements is not disputed. That the improvements will keep up with the demand is assured. Some manufacturers make self-oiling bearings, a regular specification on late models and it is but another step to enclose the gears in an oil tight, dirt proof case and run them in oil.

For making the smaller sizes of drain tile, a machine having an expressing screw about 8 in. in diameter, of proper shape and pitch, closely cased, will turn out more work with the same amount of power than will one having a screw 16 inches in diameter.

In the smaller factory whose volume of business will not warrant the outlay for two machines it is best to select one having a high efficiency on the wares most called for, usually the smaller size of drain tile.

For the medium size plant two should be used, a horizontal for the smaller and a down delivery for the larger sizes. For the modern plant to be operated on the most economical basis three should be provided: a horizontal for small tile, another for middle sizes and blocks and a down delivery for large sizes.

In brick making the proposition is much simpler as machines can be had of any desired capacity up to 10,000 brick per hour or better.

No plant should consider for a moment the advisability of getting along without a suitable grinder adapted to the material to be used and also a first class pug mill.

A good feeder is a paying investment for almost every plant. Transporting machinery for delivering clay from bank to plant should be selected according to the requirements and conditions and the clay should be dug by machinery by all means.

All new models are stronger, more durable and more efficient than their predecessors, made so by reason of increased knowledge from previous practice.

Specializing brings efficiency and economy in the manufacture of clay wares and should be carried as far as the business will permit. Modern requirements demand that the clay first be well ground, then properly tempered, then finally formed and cut up into suitable lengths preparatory to drying and burning. This can best be accomplished by separate and efficient machines for each process; then, if safely dried and well burned, you can look your customer in the eye and tell him there is nothing else as good and the price is right.

# COST ACCOUNTING

## Address by Ernest Reckett, Certified Public Accountant, before the Middle West Clay Convention at Chicago

It gives me much pleasure to be afforded this opportunity of appearing before you. The title of my paper is "Cost Accounts for Manufacturers of Clay Products," and, in the short time at my disposal, it will be my endeavor to convince you of the desirability, the practicability, and the economy of cost accounts as applied to your business, and to outline in a general way the object of such accounts and the correct method of arriving at the results desired.

The object of cost accounts is threefold:

I. To ascertain with the greatest degree of certainty possible, the cost per unit of the merchandise manufactured, in order to determine the minimum price at which such merchandise can profitably be sold. II. To ascertain the cost per unit of each separate operation which the merchandise undergoes in process of manufacture, in order that by comparison with the showing of other periods, the manufacturer may readily see just where his expenses are increasing and where he is effecting economies and why. III. To provide a perpetual inventory, whereby the manufacturer may know from day to day the exact amount of finished merchandise on hand, its location, the quantity going through process, and its state of completion.

Of course scarcely any manufacturer would admit that he does not know the cost to him per ton, or per thousand, of manufacturing, yet, if one examines carefully into the method by which he arrives at his result, one finds almost invariably that it is on such a rough and ready basis as to be practically valueless. To illustrate my point, one of the commonest methods adopted, in a case where only one kind of brick is made, is to take an inventory once a year of the brick in yard (assuming the brick in kiln), add this inventory to the total quantity sold during the year, deduct the inventory at the beginning of the year, and thus arrive at the net output of the plant. By dividing the net figure thus arrived at into the total expenses for the year, the manufacturer then claims to have ascertained his unit cost, and so he has in a way; i. e., he has arrived at the average unit of manufacturing and selling cost for the year in question, considering all expenses of whatever nature as forming part of his "manufacturing and selling cost."

This is what I should term the "Stone Age of Cost Accounting."

If "costs," however, are to be of practical use to the manufacturer, they must be arrived at on a much more scientific basis.

To begin with, it is essential that the books of account shall be kept in such a way as to show separately the manufacturing expenses as distinct from the selling expenses of the business; the former increase or diminish in direct proportion to the volume of the output; the latter do not, or at any rate not to the same extent, and it is chiefly the manufacturing unit cost which is desired.

This being the case, the first question which comes up for consideration is "What constitutes manufacturing expenses?"

Manufacturing expenses are divisible into two main classes; first, what are known as "prime cost," and, secondly, what are known as "overhead expenses," or "manufacturing burden."

Prime cost consists of the cost of the labor directly applicable to the manufacture of the finished product and the cost of the material contained in such product.

Overhead expenses consist of all other expenses incidental to the manufacture of the finished product, but which are of such a nature that they cannot be earmarked as belonging to any particular batch of material. These again are divisible into "departmental overhead" and "general overhead."

I shall speak further regarding these expenses, but for the moment, will dismiss them from our consideration, merely pointing out that it is in their failure to include certain of these expenses as an element in determining their costs that many manufacturers constantly deceive themselves.

After the manufacturing expenses have been ascertained and divided into the two classifications mentioned, it then becomes necessary to further analyze them for the purpose of arriving at "departmental costs."

The whole idea of scientific cost accounting is that the unit cost shall be built up department by department, as the product progresses from one stage of manufacture to another.

Any system which only shows the cost per unit of the finished product is incomplete, and fails to accomplish one of the main objects of a cost system, namely to furnish such details as will enable those in control of the business, to determine by comparison with the results of other periods, not only whether the cost of manufacture as a whole is increasing or diminishing, but just exactly which departments are responsible for such increases or reductions.

The results arrived at after a careful analysis and departmentalization of expenses are often astonishing, and, in the course of my practice as a certified public accountant for many years, I have over and over again, seen instances where it has been proved to manufacturers by this means that certain articles manufactured by them were being marketed at an actual loss, or that certain parts of machines, etc., manufactured, could be purchased more cheaply from outside manufacturers than they were costing when made in the plant of the manufacturer in question.

Instances of this character are not, however, very likely to occur in the plant of a brick manufacturer. The comparison of the departmental costs of one period with another, will, however, in his case, bring out facts equally striking in their bearing upon the financial results of the plant's operations. By this means, the relative value of different types of machines, different styles of kiln, different kinds of fuel, etc., can be immediately demonstrated, and the saving resulting from running the plant at its full capacity as compared with a period where manufacturing is going on spasmodically, can be expressed in dollars and cents. This last point is, of course, one of extreme importance, as if the manufacturer knows approximately the saving in overhead expenses per ton which will result by his increasing his output by a certain quantity, he is often able to figure close on a large contract and secure same, where at his old sub-capacity costs, he could not have accepted the contract at a profit.

To arrive at accurate costs, therefore, it is necessary to analyze all expenses into departments after first dividing them into "prime cost" and "departmental and general overhead expenses," as previously referred to.

Taking the business of a brick manufacturer as our example, the departments to be provided for are as follows:

Pit, grinding, making, drying, burning, stacking (separate account being kept of "turnover" of each kiln).

Separate accounts are opened for each of these departments in the books of account and to each is charged monthly:

"A" The wages of all men working in the department during the month. "B" All material used in direct manufacture. "C" Such a percentage of the wages paid in the department during the month as the total wages paid in the department during the last fiscal year bore to the total "departmental overhead expense" of the department during such year. "C" Such a percentage of the wages during such year. "D" Such a percentage of the wages paid in the department during the month as the total wages paid in all departments during the last fiscal year bore to the total "general overhead expense" of the business as a whole, during such year.

The aggregate of A, B, C, D, divided by the quantity of brick handled by the department during the month in question, gives the unit cost of manufacture of such department.

Did I hear cries for help? Well, be patient with me a little longer, and I will make myself clearer.

I spoke to you a little while ago regarding the "overhead expense" of the business and warned you that the improper treatment of these was the cause of the shipwreck of many a cost system.

Overhead expenses, as I have already explained, consist of (1), Departmental overhead expenses, i. e., expenses rightfully attributable to a particular department but which cannot be said to form part of the cost of any one particular branch of brick (e. g., rent, depreciation of kiln, power, etc.). (2) General overhead expenses, i. e., expenses pertaining to cost of manufacture but of such a character that it is impossible for anyone to determine which department should bear them.

Most of these expenses are of uncertain amount and are paid for at irregular intervals, and it would consequently be most unfair to charge the cost of manufacture of a particular month, with the overhead expenses paid during that month. What we do, therefore, is to spread these expenses over the whole year, assuming that they will, taken as a whole, bear the same relation to the total labor employed as was the case during last year, and therefore, charging the departments each month with a percentage on their labor expense as explained a few months ago.

At the end of the current year, the difference between the total overhead expenses thus added to our costs on a percentage basis and the total actual expenditures on overhead expenses during the year will show up by the books of account and we can then tell whether we are behind or ahead of the game in this respect.

This is the simplest, and in the case of a brick plant, the most satisfactory method of dealing with this class of expenses. Whether the basis of cost should be per ton or per thousand, depends upon the method of manufacture. The individual cost of number 1s, 2s and 3s, taken from any one kiln, is the same.

Having now, in a very general way, explained to you the theory on which units costs should be arrived at, I will attempt to describe as briefly as possible the way in which the necessary information is collected.

From each foreman, a report is obtained daily showing the labor in hours, expended in his departments and the material and supplies consumed, the quantity of green brick received from the previous stage and quantity turned over to the foreman of the succeeding stage. The weather condition, the inoperating time and the waste preliminary to his department's operation and also at the close of his department's operation are also shown. This report is reconciled with the pay roll of the department as shown by the factory's timekeeper, with the store's record.

Each department is alloted a separate "summary" record, whereon the data from the forman's report are gathered daily. This record will, therefore, show at the end of the month, the quantity of green brick received and processed and the labor and supply cost of the department as well as the cost of the waste. The only factor of the total cost to be added is the general expenses of the factory, such as superintendence, watchmen, etc., and the exclusively departmental expenses, such as interest, depreciation on plant used in the department, power, etc.

These expenses, as previously explained, must be carefully calculated with respect to each department, and the proper percentage of the labor as shown by the departmental summary record is added to the monthly cost of the department, in respect to same. The total shown on the departmental summary record divided by the quantity of output shows the unit cost with respect to the department. The totals from the summary records are charged to an account in the ledger called goods in process and this account is credited with the cost of the finished brick, as shown by the summary records of those kilns that were emptied during the month. Each kiln is allotted a separate summary record.

Accounts are opened in the general ledger for each department to show the amount of overhead charged to the department, the inoperating cost, the rental cost, the yearly cost for interest, depreciation, and insurance, etc., also for power and special departmental expenses. The departmental overhead account is charged with the actual expenses incurred by the department and credited with the expenses charged to the department summary record. The balance at the end of the year shows whether the amount added to the labor of the department to cover the general expenses was too large or too small.

The balance on the goods in process account shows at the end of each month the cost of the unfinished work. A finished brick account is opened with each class of brick as pavers, builders, etc., and is charged with the cost of the finished brick and credited with the cost of the brick sold, the balance being the inventory value of the brick on hand. The quantity of brick made and sold is also shown on these accounts, thus affording an approximate numerical inventory.

Revenue accounts are opened with each class of brick. These accounts are charged with the factory cost of the brick sold and with a proportion of the selling expenses and are credited with the gross sales, that is, including freight. The balances on these accounts, less the reserve for freight, shows the net profit of the various classes of brick.

The cost of power may either be charged to the various departments in proportion to the consumption of each department or preferably, since it is very difficult to determine the quantity of power taken by the various departments, the power may be charged to the various kinds of brick as 6-lb., 9-lb. brick, etc., in proportion to the number of tons produced of each kind.

The investment in building space and machinery in each department should be carefully analyzed so that each department will carry its own burden.

A perpetual inventory record, showing, at all times, the quantity and value of each kind of brick in the dryers, kilns, and in the yard, is of great value even if such a record cannot be absolutely accurate. By showing the quantity of the different kinds of brick on hand much time is saved in avoiding the necessity of making a physical count when such information is wanted hurriedly.

The use of a storeroom from which material is issued only on signed requisitions, although not so necessary in a brick plant as in a factory manufacturing a large and widely different variety of products, is nevertheless advisable.

Whatever the form of the cost records may be, it is absolutely necessary that they be intimately connected with the general accounting records. The cost accounts should be in balance with the actual books of account, otherwise they cannot be relied upon.

The cost data at the end of each month should be presented to the management in a suitably summarized and condensed form. These reports must, however, of course, be so arranged that the details substantiating any fact may be readily furnished.

In conclusion, gentlemen, I would point out that, while the introduction of a system of accounts, and especially cost accounts, may appear somewhat formidable at the outset, and especially after you have listened to an address where necessarily a large number of new methods and new principles of accounting are described and have to be compressed into a small space, the actual introduction of a system, such as I have outlined, is by no means such a difficult task as it might appear. Such a system, of course, demands the engagement of a public accountant to install it and a bookkeper, or cost clerk, who is intelligent enough to operate it, but once the system is put into operation, there is no serious difficulty in maintaining it, while the advantages, as already pointed out, far outweigh any slight extra cost in your accounting department.

## ELECTRICITY FOR CLAY PLANTS.

The Westinghouse Electric & Mfg. Co., of Pittsburgh are giving particular attention to the needs of clay products manufacturers. There has been an active interest taken in this subject recently, and a considerable number of clay products manufacturers have electrified their plants. The prominence of the Westinghouse Co. in this field is notable and their efforts to be of greater service to the industry will doubtless be appreciated.

To anyone interested in the possibilities and savings which can be accomplished through the adoption of electric drives, the new book issued by the Westinghouse Co. entitled "Electric Motors for Clay Working Machinery," will be of particular interest. The book is not merely a catalog but contains a very interesting treatise on electrically-operated clay-working plants, giving much information of importance, and many comparative figures which should be useful.

The principal arguments in favor of electrification are: First, more economical arrangement of plant. Second, increased output. Third, decreased maintenance cost. Fourth, high efficiency. Fifth, reduction in power cost. That these claims are not exaggerated has been proven many times by manufacturers who have adopted electricity for power purposes. At the recent Toronto convention some manufacturers stated they had reduced their power cost to as low as 10 cents and even 8 cents per thousand brick manufactured.

Doubtless there will be a strong demand for the special booklet issued by the Westinghouse Co. and a copy will be sent to anyone interested upon request.

## FIREPROOF BUILDING BURNS.

A travesty on the unreliability of the treacherous concrete as a fireproof building material was afforded by the recent burning of a building at the plant of the Trussed Concrete Steel Company, at Cleveland, Ohio.

The building is adjacent to the plant of the American Fabric Belting Co., and the case is unusually noteworthy owing to the fact that the owners are stockholders of the Concrete Fireproof Building Co., and the building was put up along those lines, and was presumably a model fireproof structure, being equipped with steel window sashes, affording greater protection against fire.

It is thought an electric spark dropped into a paint tank, causing an explosion and in a few moments the doomed fireproof (?) building was a seething furnace. Three employees were seriously if not fatally injured and the losses are estimated at $75,000.00 as a valuable collection of patterns and much expensive and intricate machinery was housed in the building. Still this same company will continue sending forth their publicity literature claiming marvelous qualities for their absolutely fireproof building material. The question is how long will the American people consent to be humbugged before they learn that brick is the best and most reliable of building materials?

## ADVERTISING BRINGS A LANDSLIDE.

We have received information from the secretary of the Building Brick Association of America that their initial advertisements in *Everybody's Magazine* and *Saturday Evening Post* brought extraordinary returns. These advertisements were only one column wide and 4 ins. high; nevertheless in the first 10 days after they appeared, 289 letters were received by the secretary, many stating that the writer intended to build very shortly and wanted information why he should use brick in preference to wood or cement. All of these inquirers asked for free literature, and over 70 per cent accompanied their letters with remittances in payment for the books entitled "House of Brick of Moderate Cost" and "A House of Brick for $10,000."

The wide territory from which these inquiries were received is surprising and interesting in the extreme, for the reason that in the time specified, above inquiries were received from every state in the Union with the exception of three. Also a number of inquiries were received from Canada and one from Cuba.

To each of these inquiries has been sent the convincing little pamphlet, "A Revolution in Building Materials," which has been followed with the four small pamphlets telling of the value and beauty of brick construction.

A weekly bulletin is issued every Tuesday, giving the name, address and occupation (when stated) of each inquirer, and any comments from his letter which are interesting. These bulletins are printed on uniform size paper, punched for binding and are sent out to each member of the association. No copies are sent to non-members.

These bulletins contain a mine of valuable material for the brickmaker who is seeking new and lucrative markets for his product. The secretary advises us that it has been necessary to hire larger quarters and add several assistants to handle the great volume of business which this advertising is bringing in. The B. B. A. is certainly a success.

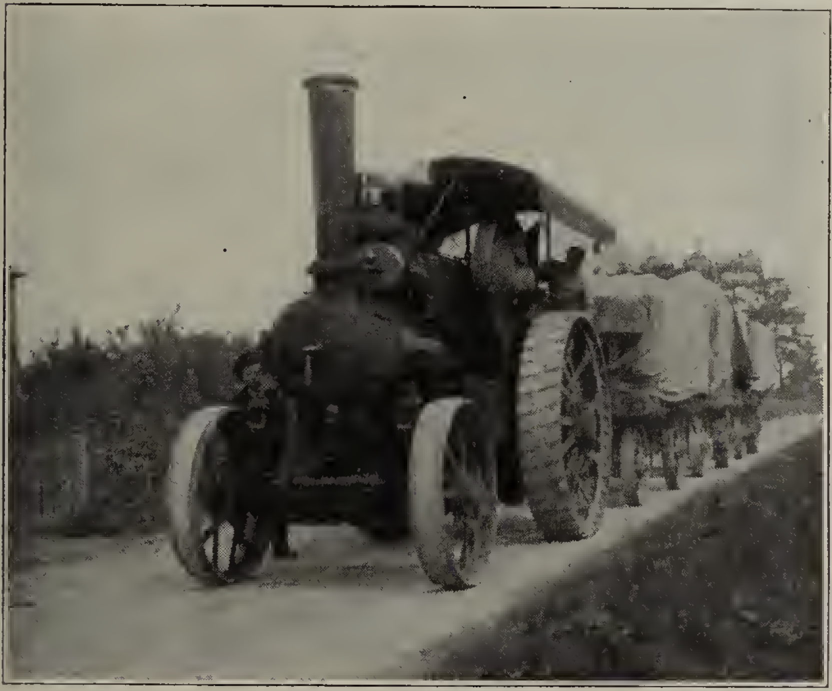
The Shaw Kiln Co., Chicago, has been organized with a capital stock of $250,000, for the manufacture of clay products. Frances D. Shaw, Ralph Starratt, Andrew J. Gray, Jr., are the incorporators.

# New Method of Transporting Brick

## Effects Great Saving in Hauling Charges and Will Please Building Contractors

The elimination of waste in handling brick from the kilns to the job in large cities has been the subject of perplexity to builders and manufacturers for ages. The cost of haulage is altogether too large in proportion to the cost of the raw material in big cities, especially where heavy grades and congested traffic have to be reckoned with. But a company is being formed in New York by Robert L. Niles, senior and junior, that will revolutionize brick handling methods, if the deals now pending are consummated.

The company proposes to manufacture hundreds of wagon bodies so equipped as to be lifted readily with a crane. These will be filled with 500 brick at the kiln, hoisted aboard the barge in the original carrier, lifted onto a wagon truck built to fit the removable bodies, at dock and hoisted from it at job to the brick layers' tray at any story. The greatest novelty of the enterprise, however, is found in the fact that the horse will be entirely eliminated.



Brick Carrier on Country Road near London, Eng.

At the kilns four of these wagon bodies will be accommodated on a single carriage or car, fitted with four steel, broad-tired wheels and there will be four of these cars. The kiln stackers will load these bodies under the sheds. Four men may be employed, thus saving barrow men's wages. Once the cars are loaded, a steam tram engine will back onto the first car and haul the tram to the barge. There a crane will transfer the wagon bodies or crates, to the boat. The barge will still carry its usual capacity of 350,000.

The company plans to operate these carrier trains through the Bronx and sparsely settled districts at first where the greatest amount of building is going on. It is said that the cost of hauling in this city will be reduced from 50 cents a cart mile to ten cents. Brick will not have to be dumped into the cellars to be broken and battered. Instead they will have only one handling from kiln to the bricklayer. Color selections may be made without difficulty.

The accompanying photographs give a good idea of what the new brick transportation outfit looks like on the country road and upon the city street. In one picture a horse is shown in front of the approaching engine and does not appear to be frightened. The picture was taken in Southampton row, near Holborn, London, in which city this mode of transportation is a common sight.

It was while Robert L. Niles, Jr., a Harvard graduate, was in England recently, that he was impressed with the cost and labor saving afforded by the use of such a system of handling rough building material. Speaking of his observations abroad and of his investigations here regarding the feasibility of the plan, Mr. Niles, Jr., said to "Brick's" correspondent at his office, 20 Broad street, New York.

"It is a serious handicap to the Good Roads movement not to mention the contractor, builder and mason material dealer, that the cost of materials should be largely enhanced by the expense of their delivery. In many instances their cost at the point of consumption is from 50 to 200 per cent (in the case of sand) above their original value at this source of their manufacture or production.

"America, thanks to the automobile manufacturers, is advancing rapidly in methods of handling more expensive materials, such as sugar, flour, express matter, etc. The auto truck, with its capacity of five tons has already largely superseded the horse drawn vehicle for suburban delivery while the smaller and lighter business wagons propelled by gasoline are to be found in every street. But such auto trucks, limited in their capacity to what they can carry on their own wheels, are too expensive to be successfully employed in the transportation of the cheaper and heavier materials.

Locomotive Brick Carrier, London, England.

"I found that the steam road locomotive is being highly developed in England both in cities and in country districts for this business. To any American familiar with public opposition to the operation of mechanical contrivances in the streets, it comes as a surprise to find in the congested streets of London whose traffic vastly exceeds that of any other city in the world, a road locomotive, with its obediently servile string of trailers turning and twisting through the narrow ways.

"With a carrying capacity of three times that of the horse-drawn vehicle for the same extreme length and with three times the speed, it becomes a mere mathematical problem to demonstrate that the streets are occupied for only one-ninth the time. This naturally results in a most noticeable reduction in traffic congestion.

"We propose to operate three car trains having a total carrying capacity of 12 tons or approximately 6,000 brick. Each car will consist of a frame work mounted on wheels designed to carry four detachable bodies or boxes, of a capacity of 500 brick each."

"The locomotive will be its own crane both at the kiln to car and car to boat and from boat to train and train to roof of building. Estimates based upon experiences of English building material firms show that a ten ton locomotive can handle a train of a gross weight of 18 tons over fair roads and up any grade less than 10 per cent at a cost considerably less than that of horse haulage with about 60 percent less wear and tear."

"The greatest saving will be in winter when snow and ice clutter the streets and tie up horse traffic."

Building material men who were interviewed regarding the feasibility of the plan said that the only difficulty they could see with the proposition was that of obtaining municipal consent for operating the engines in the streets.

"The time is coming when some change must be made and the difference in the element of danger as between an automobile dashing through the streets and slow going steam trailer engine seems to me to be entirely in favor of the latter."

New York building material men have long sought a change in hauling methods. The peculiar formation of Manhattan island necessitates the establishment of districts with a different price for each, even though water is within a mile on either side of a job. The heavy grades in Manhattan and the vast distances that have to be covered by teams in the Bronx in addition to heavy grades has much to do with making building operations higher than they should be in that city.

## LANDS BIG CONTRACT.

The Clay Product Company of Brazil, Ind., and Chicago, Ill., has just closed a contract with the Western Electric Company, which provides for the furnishing of clay conduit for all of the Bell Telephone Companies west of Ohio and the Mississippi River. This will require the production during the present year of about 5,000,000 duct feet or about 22,000 tons.

The Clay Product Company until four years ago manufactured diversified products, but determining to turn their plant to some one specialty and manufacture it properly with all operations based upon scientific formula, they chose the production of vitrified clay conduit, for which their clay is especially suited. After a discouraging and very expensive two-year period of experimenting they feel that they have at last accomplished what they set out to do—manufacture a clay conduit equal to any other on the market. The amount of business they are now doing with the largest and most particular electric service corporations certainly seems to indicate that they have accomplished one of their aims.

If the manufacture of one special commodity by one plant can be made to pay, it will eventually mean a great improvement in the quality of clay goods as well as a greater economy in production and lessening of competition.

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The tile company at Majenica, Ind., will commence work on their new kiln as soon as the weather permits, and are getting ready for the spring trade.

## GOVERNOR DENEEN COMMENDS WORK.

The governor of Illinois strongly approves of what the Ceramic Department of the University of Illinois is doing as is evidenced by several paragraphs in his message referring to this work. Considering the smallness of the appropriation there is no activity of the university which brings so many returns to the state in direct usefulness. Besides the regular teaching work, 19 courses are given, referring to the manufacture of all kinds of clay products, from the common building brick, drain tiles, terra cotta, fire brick, etc., to the highest class of porcelain and art ware, Portland cement, glass and enameled iron. Investigations pertaining to the industries in question are being carried on and in addition co-operative work is being conducted in connection with the Geological Survey of the state.

The Advisory Board of the department, consisting of Messrs. F. W. Butterworth, chairman, J. W. Stipes, D. V. Purington, W. D. Gates and A. W. Gates, held a meeting at the university, Nov. 28th, at which the president of the university, Dr. Edmund J. James, was present. Mr. Purington was unavoidably absent due to illness. The affairs of the department were discussed and the gratifying increase in the number of regular students from 19 to 40 commented upon.

Several changes in the policy of the department were advised, such as the establishment of a short course during the winter specially designed for superintendents, burners, foremen, glaze men and others who are desirous of broadening their knowledge. Particular attention is to be paid to the burning process and its control. In this way it is hoped that the department will come in still more intimate contact with the industries and their problems.

It was realized that this will necessitate larger and more adequate kiln facilities, with larger kilns as well as new appliances such as a gas producer, a recuperator furnace, recording pyrometers, draft gages, etc. For this reason it was decided to ask the legislature for an adequate appropriation.

The last meeting of the board was held during the Middle West Clay Convention, at Chicago, Jan. 17-19.

## NORTHWEST CLAY ASSOCIATION.

The committee of the Northwestern Clay Association have fixed the date of the meeting for March 15th and 16th, at which time the meeting will be held at Minneapolis, Minn. It is expected that a large attendance will be on hand to take part in a rousing meeting which will be made interesting by a number of papers on important subjects. Those wishing further information should communicate with Ira C. Jones, care of Minneapolis Brick and Tile Co., Minneapolis, Minn.

## CALENDAR FROM GERMANY.

Sprechsaal-Kalender is a calendar gotten out by Dr. J. Koerner and issued by Messrs. von Miller & Schmidt, Coburg, Germany, which is replete with information helpful to many industries, but especially designed with regard to the glass and ceramic industries.

## TO BUILD BRICK PLANT.

Negotiations are under way to put in a gigantic brick plant at Quanah, Tex. The company expects to use cheap coal from the Bastrop coal fields near by. The Elks' Lodge expects to erect a $20,000 home at the same place very soon.

## CLAY MINING IN NORTH DAKOTA.

The accompanying illustrations show clay-mining operations at the yards of the Red River Valley Brick Corporation, Grand Forks, N. D. At this plant a No. "0" Thew shovel with five-eighths yard dipper is in use. This shovel has been in operation for two years and has given excellent satisfaction.

Steam Shovel at Red River Valley Yards.

Dumping from the Dipper into Car.

For the haulage of the clay at the yard illustrated, 3-yard bottom dump cars are used, same being hauled by cable and drum up an incline, where they are dumped into a hopper from which the clay is carried by gravity to the machine room.

This company operates a number of yards and has a total capacity of 250,000 brick per day. It operates a single yard in East Grand Forks, Minn., and three yards on the Dakota side. On some of these yards electricity is used for driving the machinery.

Car at Hopper Ready to Dump.

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## OPERATIONS IN BLACK HILLS.

The Black Hills Pressed Brick Co., Rapid City, S. D., has closed down its plant, after a very successful run of two months, for the purpose of making extensive improvements. This company is operating on 50 acres of its own land within the city limits of Rapid City, which is the busiest place in the Black Hills. They own their own sand, which is in rock formation and red, white and buff in color. They are now putting in a gravity tramroad from the quarry to the crusher and rolls. The wet pan is placed under the crusher and rolls, and grinds the sand and mixes it with the lime. They get their hydrated lime from the Rapid City Lime Gypsum Co., which is under the same management as the brick company.

F. H. Perry, president of both companies, has put in a hydrating system of his own, which has worked very satisfactorily indeed. The brick company has two presses, one 4-mold Berg and one 12-mold Saginaw rotary, with three cylinders. In this plant every device that will save labor has been thought of. Individual motors are being provided for each machine. This company has its own quarry of mineral paint, and is prepared to supply other sand-lime brick plants with this material, which is very suitable for chocolate brick. This company has a large territory to supply and has experienced a big demand for its product.

C. W. Todd, who for years past covered the Black Hills and surrounding territory for the Knapp-Spencer Hardware Co., Sioux City, is sales manager for both companies; and F. H. Perry is general manager. The brick plant will be ready to resume operations in two weeks.

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

BRICK AND CLAY RECORD

Vol. XXXVIII. FEBRUARY 1, 1911 No. 3

## EDITORIAL COMMENT.

The clay products manufacturers have fully awakened to the advantages of publicity as is evidenced by the great enthusiasm and interest which has been taken this winter at the meetings of the various associations in connection with important publicity movements. The Building Brick Association of America after two years of initial work has fully demonstrated its value to the brick interests and it is quite certain that at its annual convention to be held in Louisville the second week of February, it will receive more substantial support than heretofore, so that the great work which it has undertaken can be carried on with better effect than was possible with the limited means at the disposal of the Association during the past year.

Right in line with the great awakening among clay products manufacturers is the movement inaugurated at the Middle West Convention in Chicago for the holding of an annual clay products show, and it is pleasing to report that ways and means have already been provided to a satisfactory extent and such steps have been taken as will assure the success of this plan, and which will result in an exposition being held early next year in the city of Chicago, to demonstrate to the entire country the superior merits of burned clay products and the great scope and extent of clay products manufacturers. Not only will this show offset any erroneous ideas which the public may have received through the national cement shows, but it will give an opportunity which clay manufacturers have never before possessed for showing to the public the beauty and usefulness of their products. Without question the clay men throughout the country will give their hearty support to the project.

## PROVIDING AMMUNITION.

Every brick and tile maker has his own particular battles to fight in his own locality, in his effort to increase his sales and to maintain his prices and he should avail himself of every weapon and bit of ammunition that may be at hand. A prominent clay products manufacturer located in Minnesota occasionally sends us a clipping from his local newspaper showing reproduction of articles or ideas taken from "Brick and Clay Record." He says that the local papers are always glad to accept good live matter and that he is able thereby to secure much good advertising for his product as well as aid against competition without expenditure.

"Brick and Clay Record" is continually publishing items showing up the inferiority and fallability of cement and concrete for building construction and for sewer pipe and drain tile and also numerous articles which could be used to advantage locally in educating the public to the superiority of burned clay. We supply much ammunition of this kind and the brick and tile manufacturers will do well to make use of the material which we gather.

## AN UP-TO-DATE EMPLOYER.

The successful employer of labor today who is wide awake realizes that the more information his employees can gain in his particular line of work, the more efficient they become. The trade journal fills a long felt want in this particular. These journals direct the mind along channels aiming at uplifting, inspiring influences keeping the sympathies along lines tending to improve the calling, the homes and the community.

Many employers make a practice of supplying their help with trade journals feeling that the returns in efficiency far outbalance the small sum paid for subscriptions. Such a company is the Denny-Renton Clay & Coal Co., Seattle, Wash. They sent us twelve subscriptions in all for their various plants at Taylor, Renton and Van Asselt, Wash. They say: "We find that your journal is quite generally taken by our employees, but want you to send six more copies to our plants for the use of our burners in the burning shed during their idle moments."

## *COMING CONVENTIONS*

**National Brick Manufacturers Association, Louisville, Ky., Feb. 7-10.**

**National Paving Brick Manufacturers Assn., Louisville, Ky., Feb. 6-8.**

**Building Brick Association of America, Louisville, Ky., Feb. 6-10.**

**National Association Manufacturers Clay Working Machinery, Louisville, Ky., Feb. 8.**

**American Ceramic Society, Trenton, N. J., Feb. 14-17.**

**Northwestern Clay Association, Minneapolis, in March 15-16.**

**Brick Makers Association of Arkansas.—Date not set.**

**Ontario Clay Workers Association.—Date not set.**

**Louisiana Brick Makers Association.—Date not set.**

**International Tile and Mantel Dealers Assn., New York, February 14-16.**

**National Builders Supply Association, February 21-22.**

## THE BRICK AND CLAY PRODUCTS SHOW.

With the true Chicago "I Will" spirit the plan for an annual clay products exposition has already developed into a practical fact, and those interested in the industry can now be assured that the first of these big annual events will be held in the city of Chicago early next year. While the movement is of a national character, yet it was fitting that it should be started by the Illinois State Association at its Middle West Clay Convention, and that the first show should be held in the metropolis of the Central West.

Chicago's accessibility and central location make it an ideal point for the holding of such an exposition, and its two and one-quarter million population can be depended upon to give a substantial patronage, which will insure a profitable attendance, to say nothing of the immense number who would come to the city during such an event from all parts of the country. It is quite certain that a show of the magnitude which this is certain to develop into would be of such importance that clay products manufacturers would attend from every state in the Union.

It is pleasing to learn that men prominent in the clay industry whose connection with the matter is based on their desire to further the clay interests have come loyally to the front and have provided the funds which will make the event possible.

In the Middle West convention a resolution was offered as prepared by a special committee consisting of W. P. Blair, president of the National Brick Manufacturers' Association and secretary of the National Paving Brick Manufacturers' Association; R. C. Penfield, president of the American Clay Machinery Co., and E. Bognild. This resolution required that a committee should be appointed by the president of the association to take charge of the matter, and last week this committee was appointed by President Gates as follows:

Wm. Schlake, Pres. Illinois Brick Co.
R. C. Penfield, Pres. American Clay Mch. Co.
Roger T. Coombs, Vice-pres. Thomas Moulding Co.
Albert L. Leach, Brick and Clay Record.

This committee has power to extend its scope and has already prepared plans of a practical nature for furthering the project and for providing ways and means.

As heretofore stated, this National Clay Products Show will be representative of all the various branches of the clay industry. The common brick and face brick manufacturers and dealers will show beautiful examples of wall construction, and, together with the fireproofing and floor and wall tile and roofing tile manufacturers, will demonstrate the beauty, economy and possibilities of fireproof building construction. The paving brick interest will show fully by practical illustration the superiority of brick as a paving material. The refractories manufacturers will educate the public to the many uses and the superiority of American fire brick. The sewer pipe manufacturers will settle for once and all, in the mind of the public, the superiority of vitrified clay pipe over all other material for sewerage purposes. The drain tile manufacturer will give farm underdrainage a big "boost" through a model drained farm, illustrating the vast benefits to be derived from proper drainage and the proper methods for such drainage. The floor and wall tile makers will be able, as never before, to show the public the beauty and substantial character of their interior work.

Architectural terra-cotta in all its pleasing effects and varieties will be exhibited in actual construction work, and faience and mantel tile will have its chance for the first time to show the public its artistic uses. In line with house construction the manufacturers of bathtubs, sinks and other sanitary ware will make a fine display of their products. For the first time in history the American potters will have an opportunity for displaying in proper manner the varieties and beauties of American made table and art ware.

It is proposed among other features to offer a prize of a $10,000 model burned clay house, and other attractions and special features have already been planned. It is expected that a series of illustrated lectures on brick construction will be held in a hall adjacent to the exposition, and every possible means for exploiting the uses of brick and other forms of burned clay will be taken advantage of.

The Middle West Convention will be held at that time and it is thought feasible and highly pleasing if the National Convention could be held in Chicago also.

## CLAY EXHIBITS AT THE CHICAGO CONVENTION.

A pleasing and interesting feature of the Middle West Convention, held in Chicago, Jan. 17-19, was the exhibit displayed by the various manufacturers of clay products in attendance.

Owing to lack of space they were crowded out of the convention report in our last issue.

While the display was not as elaborate as expected or desired, still a variety of the various lines manufactured throughout the country were on display.

Among the exhibits were light colored common face brick, by Hess & Moog, of St. Paul, Minn.

Sand molded brick, from the plant of Voelker & Goss, Winona, Minn.

The Chicago Retort & Fire Brick Co., Chicago, displayed a full line of fire brick of their celebrated "Ajax" brand.

Mr. H. T. McLaughlin, of The Alsey (Ill.) Brick & Tile Co., exhibited a full line of samples of different colored face brick, as well as glazed drain tile.

The Northwestern Tile and Clay Products Co., of Emmetsburg, Ia., exhibited excellent specimens of their drain tile and brick.

Wm. Hammerschmidt, representative of The Lombard (Ill.) Brick & Tile Co., displayed a line of drain tile and stiff mud brick.

Hon. J. L. Stevens, of the Boone (Ia.) Brick, Tile & Paving Co., brought excellent samples of face and paving brick.

Argillo Works, Carbon Cliff, Ill., displayed firebrick.

Hilker Bros. Brick Mfg. Co., of Racine, Wis., brought with them a variety of light colored wire-cut brick.

The Thos. Moulding Co., Chamber of Commerce Bldg., Chicago, displayed a variety of colors and patterns in a wall panel of brick, 3 x 5 ft.

Fred A. Pulliam, manager of The Benton Brick Co., Benton, Ill., had on exhibition a variety of pressed brick.

Thos. Rouse, manager of The Brazil (Ind.) Clay Co., had with him a full line of samples of face brick.

J. P. Auspach & Son, of Edgarton, Ind., had a line of various sizes of drain tile.

Jos. Glandon, of The Mexico (Mo.) Brick & Fire Clay Co., showed a full line of fire brick and shapes.

The Ohio Clay Co., Cleveland, O., attracted considerable attention to their interlocking hollow building blocks.

## HAIGH KILN FOR SPOKANE.

It is announced that arrangements have been made for the erection of a Haigh continuous kiln at the plant of the American Fire Brick Co., Spokane, Wash. This kiln will have a capacity of 65,000 brick per day.

## ON TO LOUISVILLE.

This will be the slogan of hundreds of clay products manufacturers, during the next week, and it is likely that there will be a very satisfactory attendance at the National Convention to be held at Hotel Seelbach, in Louisville, on Feb. 7th to 10th. The National Paving Brick Manufacturers' Association will have the floor first and as usual their annual gathering will be of much importance to the paving brick interests. Chas. M. Crook of the Bessemer Limestone Co., Youngstown, O., is president of the association, J. W. Robb of Clinton, Ind., is vice-president, C. C. Barr, of Streator, Ill., is treasurer and W. P. Blair secretary.

The National Paving Brick Manufacturers, Association has been an organization of great value, to that branch of the clay industry, and has accomplished much in educating the American public and municipal authorities to the superiority of brick as a street and road surfacing material. Their organized effort in this direction has been carried along upon most systematic and well defined plans and their publicity work should well be considered a model for others to follow. Members will be interested at this session to know the actual results of the new plan of headquarters organization put into effect. The control of the work by state boards was changed, making the central body through its executive committee responsible for all the affairs of the association.

Perhaps the greatest interest to be shown in the coming convention will be in connection with the work of the Building Brick Association of America, that two year old organization, which has already accomplished so much in behalf of the face and common brick interests of the country. This association is now old enough and has had experience enough to permit a fair estimate being made of its actual value and the opinion appears to be unanimous that the work which it has undertaken should be continued along even more enterprising lines, than heretofore, and that steps should be taken to provide a fund sufficient to make the publicity work most effective. The association is now provided with a fine lot of ammunition and all it needs is sufficient money to use this ammunition to the best advantage in educating the public to modern fireproof construction and the advantages and superior merits of brick as a building material.

Some amendments to the by-laws will be offered for consideration including the provision that the board of directors should consist of 27 members and that there should be an executive committee of 5 members. The adoption of this amendment will require the election of two additional directors for terms of one year each, two for a term of two years each and 9 for a term of three years each and at each ensuing annual meeting there should be elected 9 directors for the term of three years each.

It is hoped that at this meeting plans will be perfected by which a publicity fund of at least $25,000 may be raised for an educational campaign to be carried on throughout the U. S. during the coming year.

Several important papers regarding publicity work are scheduled on the program.

The convention of the National Brick Manufacturers' Association opens on Wednesday afternoon, Feb. 8th. This is the 25th annual convention of the National organization and it is hoped there will be a large attendance. The Seelbach Hotel will be found a very convenient and enjoyable gathering place. Several enjoyable features of entertainment have been provided for, including a side trip to the famous Mammoth Cave, which is scheduled for Saturday. Feb. 11th. A special train will be provided for those who wish to take this trip. The annual banquet will be served Thursday evening. Among those present will be the governor of Kentucky, Hon. Augustus C. Wilson.

For the accommodation of those attending the National Convention from Chicago and adjacent towns, the Big Four Line will run a "Brick Makers' Special," leaving Chicago Monday evening 9:05. Reservations on this train can be made at the general offices of the Big Four Ry. by telephone, telegraph or mail. Delegates from Iowa, Wisconsin and other states have decided to take advantage of this special train.

Following is the program of the convention:

### N. B. M. A. Program.

Welcome to Louisville by his honor, Mayor W. O. Head.

Response, by G. W. McNees, Kittanning, Pa.

President's Annual Address, Will P. Blair, Indianapolis, Ind.

Report of Treasurer, John W. Sibley, Birmingham, Ala.

Election and installation of officers and members of standing committees.

"The Missing Link Between Success and Failure in the Brick Business," R. E. Sunderland, Omaha, Neb.

"Vitrified Sewer and Culvert Pipe" (illustrated by stereopticon views), George H. Tefft, Secretary and Sales Manager W. S. Dickey Clay Manufacturing Company, and Secretary-Treasurer Western Clay Products Publicity Bureau, Kansas City, Mo.

"Trade Schools and How They Might Benefit the Brick Manufacturers," John R. Bell, Huntingdon, Pa.

"The Comparative First Cost of a Brick House and One of Wood or Cement."

"An Enormous New Market for Brick."

"The Brick Veneered House—Its Cheapness and Desirability," by W. E. Dunwody, of Macon, Ga.

"Winning the Public for Brick," by John Andres, Secretary and Treasurer of the Standard Brick Manufacturing Company, of Evansville, Ind.

"Rejuvenation of Brick Plants," Ellsworth Ogden, Zanesville, Ohio.

"Clay Workers the Real Conservationists," Architect F. W. Fitzpatrick, Washington, D. C.

"Economy and Efficiency in Waste Heat Dryers," C. E. Fuller, Buffalo, Kan.

"Natural Versus Artificial Draft in Burning Clay Ware," John C. Boss, Elkhart, Ind.

"Comparative Value of Fuels in Burning Brick," Julius J. Koch, St. Louis, Mo.

"Manganese Steel Applied to the Ceramic Industries," George Kneisly, Chicago, Ill.

"System in the Clay Plant," M. E. Gregory, Corning, N. Y.

"The Manufacture and Testing of Fire Brick," A. V. Bleininger, Champaign, Ill.

"Some of the Properties of Brick and Brick Work," J. E. Howard, of the Bureau of Standards, Washington, D. C.

"Crushing Strength of Clay Products," Harrison Everett Ashley, of the Bureau of Standards, Pittsburg, Pa.

"Continuous Compartment Kilns and the Common Method of Burning Brick," William A. Butler, San Francisco, Cal.

"Lessons of Experience in the Brick Business," E. P. Elzey, Parkersburg, W. Va.

"Tariff Duties Between United States and Canada, and the Effect on the Brick Business," L. S. Kendrick, Saginaw, Mich.

"Good Fellowship an Asset in the Brick Business," Charles H. Bryan, Detroit, Mich.

Report of Committee on Technical Investigation," Ross C. Purdy, Columbus, Ohio.

## INDUSTRIAL RAILWAY EQUIPMENT.

The Sackett Screen & Chute Co., 1681 Elston Av., Chicago, are making a specialty of industrial railway equipment for clay working plants. They manufacture a fine line of clay dump cars and also supply the necessary rails, switches, turntables, frogs, etc., required for the complete yard railway equipment.

The Sackett two-way dump car made especially for the use of brick and tile manufacturers is employed in a number of yards in the Middle West and has proven very satisfactory and economical. While it is very light, it is built for durability and is easily handled. It may be dumped on either side with ease and one man can push a loaded car. The wheels are made of chilled iron, either self-oiling or roller bearing type, and it is made in capacities from 18 to 54 cubic feet and for any gauge track. Those interested in the subject will do well to send for catalog No. 31 B, addressing the Sackett Screen & Chute Co., 1681 Elston Ave., Chicago, Ill.

# MORE LETTERS OF COMMENDATION

## All Doubt Dispelled as to the Popularity of the Semi-Monthly

**Mr. W. E. Dunwody, president of the Standard Brick Co., Macon, Ga.,** writes us the sort of letter which cheers us on our way and encourages us to further efforts to please and benefit our readers. He says: "I received with a great deal of pleasure the first issue of the combined Brick and Clay Record, which I read with a great deal of interest. I think the merger of these two papers was a very happy thought and was one that will result in a great deal of good to your subscribers.

"I appreciate very much your efforts as publishers in endeavoring to produce a high grade journal for the benefit of the brick fraternity, which is certainly very essential, and I do not think that any up-to-date brick manufacturer can afford to be without your journal.

"The Great Brick Fraternity should work together more for the general good. For some reason, which I have never been able to understand, as soon as a man gets in the brick business he seems to feel that the balance of the brick fraternity are working against him, and he seems to no longer have any desire for the friendship of any one interested in the manufacture of brick. This is a very sad state of affairs and one that is making it a very difficult matter for the Building Brick Association of America to bring about the great good which would be possible if the brethren would co-operate in the effort to convince the world that brick was the best building material.

"If we could bring about a unity of action and desire to co-operate among the brick manufacturers of the United States, and at the same time, in some way, get them to realize the great possibilities if they would co-operate and the great responsibility which rests upon them to co-operate, we could double our business in a very short time.

"I suggest that you continue to do everything in your power to assist in the upbuilding of the Building Brick Association of America, which I believe is one of the greatest institutions ever organized for the benefit of the Brick Makers' Fraternity."

**Mr. F. L. Hopley, head of the advertising department of the American Clay Machinery Co., Bucyrus, O.,** writes as follows: "We are in receipt of the first combined issue of Brick and Clay Record, and in behalf of the clay trade, and especially the machinery men, we desire to thank you for the high quality you have attained in your publication. We believe that the clay industry, being the third in importance in the United States, is entitled to one of the best trade journals in the country, and we feel sure that your efforts are toward that end."

**We gleaned the following from a recent communication of C. Miller & Sons, proprietors of the Clermont (Ia.) Brick & Tile Works:** "We received the first issue of the combined Brick and Clay Record and find it way beyond expectations. It is certainly great. We have taken Brick for a number of years and have always looked forward to its coming with pleasure and anticipation and have never been disappointed in same. We see no reason why we should not receive more benefit from the two combined.

"The outlook for the coming season is very good. We have never seen the time when in our locality we could not sell all the material we could make."

**Mr. Herman Groscop, manager of the Butler (Ind.) Brick & Tile Co.,** says: "Your journal is certainly very valuable around a brick and tile factory, and worth many times the cost of subscription."

**Gustav Maeglin, Muscatine, Ia.,** writes as follows: "I received the New Year's edition of Brick and Clay Record, which is the best publication of its kind."

**L. B. Mitchell, New Straitsville, O.,** says: "Please continue sending your paper for another year. I enjoy reading Brick and Clay Record very much. I wish you a prosperous year."

**Mr. M. O. Hanson, Portland, Ore.,** says: "Since coming out here I miss 'Brick' very much and hope to get it soon. I would not be without it for any length of time if I could possibly help it."

**Mr. Albert E. De Rosay, Boston, Mass.,** states in a recent letter: "I was pleased to receive the copy of your Souvenir New Year's Number a few days ago. The book is well gotten up, and certainly is more than interesting to all manufacturers of clay products of any kind. It keeps one in touch with the brick business and clay industries over the entire country, and I certainly will subscribe for your journal this season."

**C. H. Merrick, Syracuse, N. Y.,** says: "I have read your paper this past year with pleasure and profit, and I hope it will long continue in the good old 'brick' way."

**Mr. F. L. Tettemer, general manager of the Denver (Col.) Shale Brick Co.,** states in a recent communication: "We have before us the current issue of your new combined publication and you are indeed to be congratulated on the splendid result of your efforts, viewed equally from a practical, a scientific and a literary standpoint. No manufacturer can afford to get along without such an elaborate and instructive trade journal; and we predict for you an increase in circulation so rapid that even you may be surprised."

**Mr. Howard Frost, of the Los Angeles (Cal.) Pressed Brick Co.,** writes appreciative letter, saying: "In our opinion you made a very wise move in the consolidation of the two publications. We feel sure that the entire trade will appreciate the advantages of such a splendid magazine as the January edition of Brick and Clay Record."

**The Kankakee (Ill.) Tile & Brick Co.** have to say of the merger as follows: "The first issue since the merger is at hand and is a fine specimen of the art of printing, and a credit to the clay profession. You are to be congratulated on the success of your efforts."

**An excerpt from a letter from Dr. A. B. Searle, Sheffield, Eng.:** "Hearty congratulations on the remarkably beautiful new issue, copy of which has just arrived."

**Mr. T. F. Harwood, president of the Sunset Brick & Tile Co., Gonzales, Tex.,** writes us as follows: "We are in receipt of the copy of the Brick and Clay Record and it is all that could be desired in a journal for the clay-working industry, and is exceedingly attractive in appearance and general make-up."

**The Decatur Brick Co., of Decatur, Ill.,** writes us: "You need to be congratulated on the excellent edition of Brick and Clay Record you are publishing. The January number alone is worth the year's subscription."

**A letter of congratulation has been received from the Standard Brick Manufacturing Co., at Evansville, Ind.,** saying: "We beg to extend our hearty congratulations upon the consolidation of Brick and Clay Record, and also upon your purpose to give us two issues per month instead of one. We have always found your magazine to be highly interesting and we regard it as valuable in many ways to us and everybody interested in clay products."

## THE AMERICAN CERAMIC SOCIETY.

The 13th annual meeting of the American Ceramic Society, to be held at Trenton, N. J., Feb. 14th and 15th, promises to be of considerable importance to clay products interests. It will doubtless be well attended by the membership. The headquarters will be at Hotel Windsor, where the sessions will be held.

The society will meet as a whole in sessions on the 14th, and on the 15th and 16th, will be divided into two sections for the completion of the program. Friday the 17th, will be devoted largely to the special trip to various potteries in Trenton, which rivals with East Liverpool, O., as a pottery center in this country. The Trenton members of the society have arranged a number of interesting entertainment features, including two automobile rides, a banquet and a theatre party.

Perhaps the most important matter to be considered at this meeting of the society will be the proposed revision of the rules and constitution. The revision among other things provides that the society shall consist of four classes of membership, i.e. "Honorary," "Active," "Associate" and "Patrons." The rules for membership are more exacting than heretofore in accord with the more effective organization. The annual meetings will take place on the first Monday of each February at such place as the board of trustees may decide. The board of trustees shall employ an active member of the society as editor of the publications and this editor with the secretary and treasurer shall constitute a publicity committee which shall have in charge the publication of the annual transactions of the society. Following is the program of papers which will be presented at the coming meeting:

### Program.

"The Range in Composition of Glazed White Ware Bodies," by R. C. Purdy, Columbus, Ohio.

"The Influence of Body Upon Glaze in White Wares," by Charles F. Binns, Alfred, N. Y.

"The Relation Between the Artist and the Chemist in Ceramic Manufacture," by Herman C. Mueller, Trenton, N. J.

"Report of the Committee on Classification of White Wares," by Charles Weelans, Chairman, and H. E. Ashley.

"A Talk on Kiln Firing," by William Canaan, Jr., Syracuse, N. Y.

"The Calculation of Ceramic Mixtures," by Homer F. Staley, Columbus, Ohio.

"Seger's Laws on the Control of the Fitting of Glazes," by R. C. Purdy, Columbus, Ohio.

"Cutlery Marks on White Wares," by H. E. Ashley, Pittsburgh, Pa.

"A Thermal Study of Silica-Boric Acid Mixtures," by A. V. Bleininger, Urbana, Ill.

"The Effect of Metallic Sulphides on Claywares During Firing," by Frank A. Layman, Milwaukee, Wis.

"Chrome-Alumina Colors," by Arthur S. Watts, Zanesville, Ohio.

"Fuel-Oil Furnace Practice" (lantern), by A. D. Lee, Trenton, N. J.

"The Preparation of Feldspar for the Market" (lantern), by H. F. Worth, Philadelphia, Pa.

"Some Experiments on Fritted Enamels" (lantern), by Frederic Read, St. Louis, Mo.

"Microstructure of a Red Burning Clay at Various Stages of Burning" (lantern), by William H. Gorsline, Rochester, N. Y.

"Design of a Ten Foot Updraft Potter's Kiln" (lantern), by F. H. Riddle, Akron, Ohio.

"The Relation Between the Composition of a Porcelain Body and Its Toughness," by Lester Ogden (Presented by R. C. Purdy).

"Some Coefficient of Expansion Data on Porcelains Made from European Materials," by Arthur S. Watts, Zanesville, Ohio.

"The Coefficient of Expansion and Contraction of White Ware Body Mixtures," by R. C. Purdy and A. P. Potts, Columbus, Ohio.

"Some Effects of Gypsum on Clay," by H. E. Kramm, Ithaca, N. Y.

"The Effect of Temperature on the Dielectric Strength of Porcelain," by Chester E. Henderson and George Weimer. (Presented by R. C. Purdy.)

"The Relative Solubility of Clay and Flint in Feldspar," by R. C. Purdy, Columbus, Ohio.

"The Control of Solubility in Enamels," by H. F. Staley, Columbus, Ohio.

"Porcelain Glazes," by R. C. Purdy, Columbus, Ohio.

"Note on the Manufacture of Silica Bricks by the Anaconda Process," by A. F. Greaves-Walker, Dresden, Ohio.

"Further results of Load Tests Upon Fire Bricks," by A. V. Bleininger and G. H. Brown, Pittsburg, Pa.

"Clay and Kaolin Mining in Europe" (lantern), by A. S. Watts, Zanesville, Ohio.

"Some Experiments on the Color of Soda-Lime Glass" (lantern), by K. Takahashi, Clarksburg, W. Va.

"The Clays of Utah," (lantern), by A. F. Greaves-Walker, Dresden, Ohio.

"The Manufacture of Roofing Tiles," by Charles Stolp, Chicago Heights, Ill.

"The Clay Deposits of Washington," by S. Geijsbeek, Seattle, Wash.

"Experiments With Feldspar in Residual Kaolin," by J. Keele, Ithaca, N. Y.

"Potash From the Feldspars" (lecture), by Dr. Edward Hart, Easton, Pa.

"The Physical and Chemical Processes involved in the Formation of a Residual Clay," by H. O. Buckman, Ithaca, N. Y.

"Note on the Drying of Clays," by A. V. Bleininger, Urbana, Ill.

"Note on the Drying Defects of Certain Tertiary Clays," by Edward Orton, Jr., Columbus, Ohio.

"Some Practical Observations on Drying Terra Cotta," by W. J. Stephani, Crum Lynne, Pa.

"Ventilation Formulae and Their Use in Kiln Flue Regulation," by Dwight F. Farnham, Renton, Wash.

"Positive and Negative Draft Planes in a Down Draft Kiln," by D. T. Farnham, Renton, Wash.

"The Measurement of Draft in Some Commercial Kilns," by J. M. Knote, Pittsburgh, Pa.

"Coke Oven Refractories," by Morgan B. Smith, Syracuse, N. Y.

"The Swelling of Fire Brick After Placing in the Wall, on Exposure to High Temperatures," by John Ogan. (Presented by R. C. Purdy.)

"A Method of Testing Clays for Paving Brick Purposes," by H. E. Ashley and G. H. Brown, Pittsburgh, Pa.

"The Cause and Control of the Mottling of Enamels on Metal," by H. F. Staley, Columbus, Ohio.

"Enamels for Jewelry," by Johannes Minneman. (Presented by R. C. Purdy.)

"Porosity vs. Absorption Data, and What Is Meant by the Term Vitrification," by R. C. Purdy, Columbus, Ohio.

"The Use of Mixtures of Feldspar, Clay and Flint in the Manufacture of Chemical Porcelain," by Gerard Murray. (Presented by R. C. Purdy.)

"A Comparison of Commercial Ground-Coats for Enamels Used in Cast Iron Wares," by J. H. Coe. (Presented by H. F. Staley.)

"The Physical and Chemical Changes of Limestones, Calcined at Several Temperatures," by A. V. Bleininger and W. E. Emley, Pittsburgh, Pa.

"The Chemistry of Sand-Lime Bricks," by T. R. Ernest, Spokane, Wash.

"Recent Progress in Paving Brick Testing," by Edward Orton, Jr., Columbus, Ohio.

"Standard Test Pieces for Crushing Tests of Terra Cotta," by J. K. Moore, Seattle, Wash.

"Steel Dies as Applied to the Manufacture of Dust-Pressed Wares," by Albert E. Smith, Trenton, N. J.

"A Standard Method of Mechanical Analysis of Clays," by H. E. Ashley, Pittsburg, Pa.

"The Scope of Ceramic Work in Secondary Schools and Trade Schools," by R. G. Cowan, Cleveland, Ohio.

"Methods of Supporting Heavy Terra Cotta Cornices" by William J. Stephani, Crum Lynne, Pa.

"The Oxygen Ratio," by H. H. Stephenson, The Doulton Works, England.

## CHASE FOUNDRY CO., ELECTS OFFICERS.

The Chase Foundry & Mfg. Co., of Columbus, Ohio had its annual stockholders meeting on Jan. 14th, at which time the old board of directors were re-elected. At the directors meeting following stockholders meeting, Mr. P. A. Myers, of the firm of F. E. Myers & Bro., of Ashland, O., was elected president; Mr. Guy C. Myers, of Ashland, O., was elected vice-president; Mr. S. M. Chase of Columbus, O., was elected secretary and general manager.

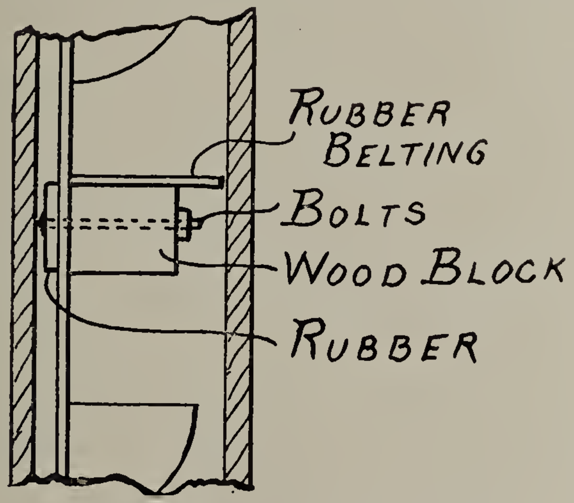
The business for the year 1910 was found to be most satisfactory and there is an exceptionally good outlook for the year 1911.

# THE SUPERINTENDENT

## KEEPING ELEVATOR LEGS CLEAN.

By W. H. Edwards.

This is a simple contrivance for cleaning elevator legs, but the writer has found it very useful. It is made by taking a block of wood about an inch smaller all around than the elevator leg and bolting it to the elevator belt.



To Keep Elevator Legs Clean.

On top of the block is nailed a piece of heavy rubber belting which almost fills the leg. At the back of the belt the bolts are put through a narrow piece of rubber, which serves to keep the back part of the leg clean. The whole contrivance is easy to make and it keeps the leg cleaned out all the time.—American Miller.

## HOW TO DRILL GLASS.

Glass may be drilled with an ordinary flat drill set in a brace if it is freely lubricated during the whole process with turpentine. Needless to say, this is a most tedious operation and it will be found much simpler to make a small hole first in this fashion and then enlarge to the size desired than to attempt to drill a large hole at once. Another similar method is to take a piece of copper tubing of the size desired, roughen, use emery and drill under a sensitive drill or a hand drill, using high speed and as little pressure as possible.

## DEFECTS IN ZINC CASTINGS.

Defects in zinc castings may be smoothed over and obliterated by a preparation made after the following formula: Make a solution of soda in water of about 33 degrees Be. strength. Into this mix fine precipated chalk and zinc dust (or zinc gray, as it is called) until it forms a thick paste. This gray substance will set and harden in six or eight hours, and if then polished with an agate burnisher it takes on a shining white appearance like that of metallic zinc.

## TO MAKE BRAZED JOINT.

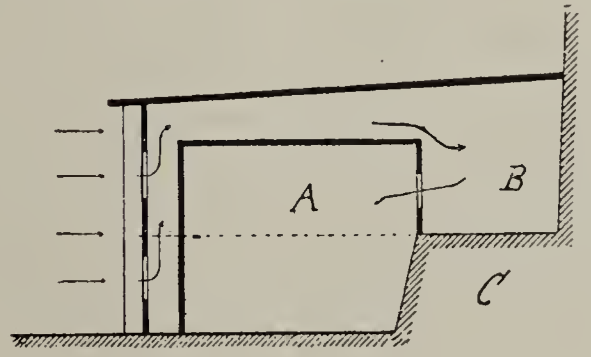
If occasion should arise when it is desirable to make a good clean brazed joint, the metal should be carefully cleaned, heated to a bright red, and then covered with the flux of the following formula: One pound of boric acid, four ounces of pulverized chlorate of potash, and three ounces of carbonate of iron.

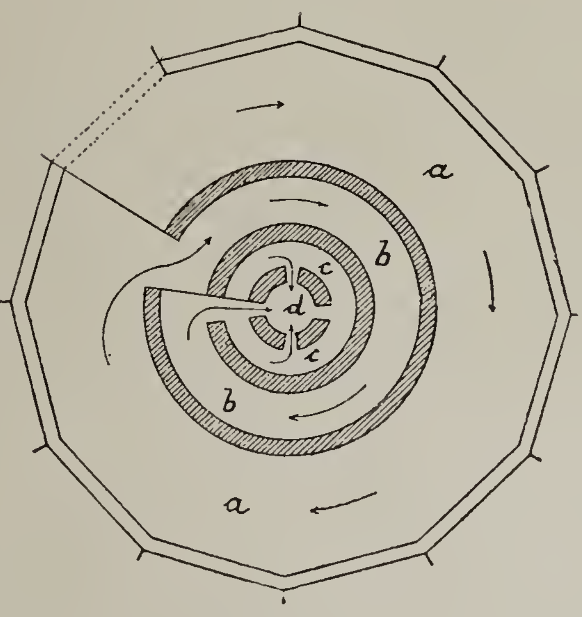
## A NOVEL DRIER.

A method of drying used to considerable extent in Europe is here described by Herr Dummler, which he says has proven very satisfactory for certain clays.

"This consists of a simple shed around and above the continuous kiln, the shed being so constructed that the air used for burning the fuel and for cooling down the fired brick is first drawn through the drier in order that it may dry the brick.

"The arrangement is shown in plan and section in the accompanying sketches, arrangements being made (as shown) for the utilization of some hot air from the chambers (B) in the drier (A) if such is desired. Ordinarily, the heat radiated from the kiln walls is considered as sufficient to heat the entering air, and the arrangement shown in the plan is then used, *a* representing the drier, *b* the kiln chambers, or 'tunnel,' and *c* and *d* the main flue and chimney.





A Novel Driver.

"This type of drier has never been used to any great extent in this country by brick and tile makers, though potters have for generations built their kilns in a shed, because of the advantage thus gained in more regular heating and less liability of the pottery to crack by exposure to drafts. In Germany and Switzerland this type of drier around or above the kiln is considered to be very advantageous, as the air is slightly warmed before it enters the kiln, the workmen are under cover, allowing them to labor more effectively; and the heated air needed

## USE OF SOFT SOLDER.

The use of soft solder in and about machine parts is not generally regarded as consistent with good workmanship, but in the case of loose fixtures it is often useful in tightening up the parts when loose. For instance, if the driving gear of a lathe on the spindle and the latter is so light that it does not afford a good support for the key, the gear, key and spindle may be tinned and heated sufficiently to melt the solder so that it acts as a sort of glue when the parts cool and holds the gear firmly in its place. Such a job will last almost as long as the various parts and save all the lost energy and wear that accompany loose, rattling machinery.

## TO MAKE TAPERED SPINDLE.

To reproduce a tapered spindle without a socket and without centers place the pattern on a work bench and clamp two bars to the table, one on each side, so that they fit the spindle snugly without holding it so firmly that it cannot be removed. In making the new spindle the space between the bars is a more accurate gauge of the accuracy of the work than a socket because in fitting the taper into the open socket formed by clamped bars one can see the whole length of the part and make an accurate duplicate of the pattern.

## EXTENSION DRILL MADE OF PIPE.

A serviceable extension drill may be made from a section of brass or iron pipe in the following manner: Take a piece of pipe, the internal diameter of which is the same as the diameter of the hole to be drilled. With a crosspeen hammer make two dents opposite each other about one and one-half inches from the end of the pipe. Into this end drive the twist drill first, grinding the end flat. A tap may also be driven in this fashion successfully.

## THE FOUR POWERS.

The progress of industry may be measured by four powers: Man power, animal power, water power, steam power.

## TO REMOVE GREASE FROM OVERALLS.

The seasoned worker doubtless takes a certain pride in the grease and oil that long service has rubbed into his overalls; but should any one desire thoroughly to clean his working clothes this process will be found effectual. First go over the whole outfit with a brown paper and a hot iron. Lay the paper on the cloth and run the iron over it. The heat will melt the grease and the paper will absorb it. Then prepare a solution of one pound chloride of lime in a pail of hot water. When all the chloride is stirred through and dissolved, put in the overalls and allow them to soak for three hours. After rinsing in water, wash with soap and water and store away the solution for future use. In this process it is advisable to keep the hands as free from the chloride of lime solution as possible.

## STRONGEST KIND OF SPLICE.

Wire splicers from long experience have found that the strongest possible splice is one of five turns in what is known as the neck of the splice. The end turns with which a splice is finished off have practically no holding power. In these the end of the wire is wrapped in a close, tight coil about the straight stem of the other wire and serves rather as a finish to the splice than as a protection against stretching or loosening of the splice. A splice of five turns in the neck has been tested and found as strong as the wire from which it is made, with no tendency to yield or stretch up to the breaking point.

## TO CLEAN MACHINE BELTS.

Machine belts sometimes become so saturated with oil that they will not stay on the machines. Of all methods this is probably the simplest for cleansing the leather of oil and restoring its efficiency. Coil the belt in a tub of sufficient size so there is some space between the coils, then cover with whiting. The whiting should come in contact with the leather at every point on its surface, and if properly covered in this fashion the belt will soon be in good condition, for the whiting will absorb all the oil and restore the texture of the surface. Before being put back to use it should be wiped clean.

## USEFUL TABLE FOR MACHINIST.

An experienced machinist has well in mind the relations between the size of his bolts and the size of the drill to be used in making a hole for the bolts, but a table giving the proper size of the drill to be used in making a hole that is tapped for a given bolt may be a convenience to many workers, especially amateurs. The following table recently appeared in an English technical publication. Incidentally it might be well to cut this out, paste it up in the shop, and cover it with a coat of white shellac to insure its preservation:

TABLE OF DRILLS FOR TAPS.

| For Bolts | | | | For pipes | |
|---|---|---|---|---|---|
| Size of tap in inches. | Size of drill to use, in. | Size of tap in inches. | Size of drill to use, in. | Size of tap in inches. | Size of drill to use, in. |
| ¼ | 3/16 | ⅞ | 13/32 | ¼ | 15/32 |
| 5/16 | ¼ | 15/16 | ¾ | ⅜ | 19/32 |
| ¾ | 9/16 | 1 | 27/32 | ½ | ¾ |
| 7/16 | 11/32 | 1⅛ | 15/16 | ¼ | 1 |
| ½ | 13/32 | 1¼ | 1 1/16 | 1 | 1¼ |
| 9/16 | 7/16 | 1⅜ | 1 5/32 | 1¼ | 1 17/32 |
| ⅝ | ½ | 1½ | 1 9/32 | 1½ | 1 13/16 |
| 11/16 | 9/16 | 1⅝ | 1⅜ | 2 | 2¼ |
| ¾ | ⅝ | 1¾ | 1½ | 2½ | 2¾ |
| 13/16 | 21/32 | 2 | 1 23/32 | .... | .... |

## NEWS NOTES.

Prof. A. L. Snider of the Okla. Geological Survey has been in Grady County making investigations as to the qualities of the clay found there, for brick making.

The Revere Fire Brick Company has been incorporated at Orange, N. J. with a capital stock of $50,000. The incorporators are Harry H. Picking, Charles C. Goyer, and Frank Ruggles.

The Hills Pressed Brick Co., and the Rapid City (S. Dak.) Lime & Gypsum Co., are contemplating the establishment of a new plant in Erskine, S. Dak.

## BRICK PLANT SOLD.

Mr. Chester L. Sutter has purchased the brick business of Henry Mathews, Northampton, Mass. Mr. Sutter has made a study of the brick-making industry in all its branches and intends to install up-to-date equipment in addition to that already in the acquired plant. This will insure a brick production adequate to the demands of the home market.

## PENNSYLVANIA NEWS ITEM.

The Harrisburg Clay Co., of which E. W. Rinkenbach is president, have recently purchased a valuable deposit of white clay in Cumberland County, for $12,000, and another tract adjacent to this for which they paid $4,000.

This company will erect a brick plant which it is estimated will cost nearly $200,000.

## KILN EFFICIENCY.

By R. L. Frink, Lancaster, Ohio.

In the manufacture of clay materials a great portion of the worries and depreciation of profits lies in the final operation of burning the material. This is due to the fact that at this stage of the making, errors or manipulation of any character produce losses, which are largely final ones, while at any previous time, the material can be recovered and the expenditure of time and money are comparatively small, therefore kiln efficiency is a factor of no small magnitude, when considering the dividend-paying capacity of a clay plant.

In speaking of kiln efficiency, reference is made to all of the factors of cost which enter into the burning of the ware, from delivering of other formed material, to the drawing of the kiln; however, the principal factors are time required in burning; fuel consumed and quantity of first quality ware taken from the kiln, all of which are more or less variable, according to local conditions, but none of which have heretofore received the attention which their importance justifies, for, while more or less time and money have been devoted to kiln construction, etc., there has been but little attention paid to the conditions existing in these kilns during the firing period, or at least not investigated in a manner as to furnish information of a character that would enable one to make accurate deductions and evolve a method of firing which could be based upon facts, and not hypothesis.

An experience of several years in the clay industry, most of which has been devoted to determining various faults and sources of kiln loss in a large number of different plants making various kinds of ware, leads one to believe that the governing property of these factors are an unknown quantity in the majority of plants, this conclusion is substantially proven by the absence of any means whereby any determination of true conditions could be made, that would furnish facts on which to base a method of operating the kilns.

Further, if apparatus is at hand, which might reveal these facts, it is many times inefficiently or wrongly applied, and not thoroughly understood, and in fact often proves to be misguiding and a detriment.

The governing property of burning is heat, of which these factors are functions, therefore, to obtain a correct method which will produce maximum kiln efficiency, necessitates an accurate knowledge of the heat within the kiln at all times; and an understanding of those conditions in that particular kiln, which effect its relations with a particular kind of clay, made into a particular form, or shape.

It is not to be understood, that heat here implies that it is only necessary to know the temperature, for, while this is necessary, what is of equal or greater importance to know, is how, when and where the heat is produced and applied; as also of what it is produced, for, the cause of black-coreing, swelling, slivering, air checking, popping or blowing, loss of color, warping, pimpling, and kiln-marking, are known to any up-to-date man; but when, how, what and where in the burning process do these imperfections occur, and if known, how to prevent them, is the problem.

The following figures show some of the results obtained by the proper application of apparatus and method of using same, which, it is possible to obtain, when this primal factor is governed approximately correct.

These figures are taken from records of every-day practice and represent the average from not less than 25 kilns. The first figures are costs from old practice, while the second are from kiln practice approximately according to a method devised by the writer:

FLUE LININGS.

CONDUIT.

| Time. | Tonnage. | Cost Per Ton. | Quality. | | |
|---|---|---|---|---|---|
| | | | 1st. | 2nd. | Scrap. |
| 144 hours ..... | 57 | .81 | 72% | 16% | 12% |
| 110 hours ..... | 60 | .65 | 92% | 6% | 2% |
| 20-INCH SEWER PIPE (Double). | | | | | |
| 146 hours ..... | 44 | 1.55 | 40% | 45% | 15% |
| 118 hours ..... | 46 | .926 | 91.2% | 8% | 1.8% |
| BRICK (Paving and Repress). | | | | | |
| 154 hours ..... | 196 | .81 | 65% | 27% | 8% |
| 121 hours ..... | 158 | .463 | 88% | 8% | 4% |
| CONDUIT. | | | | | |
| 140 hours ..... | 91 | 1.17 | 61% | 32% | 7% |
| 98 hours ..... | 93 | .93 | 88% | 9% | 3% |

The above figures are taken from plants where coal cost approximately $3.00 per ton, and the clay is an exceedingly difficult one to burn, without producing nearly all of the defects which it falls due to.

These results were accomplished solely by determining in each plant, the cause of imperfections, and by installing a system of pyrometers, draft apparatus, settle measuring devices, kiln inspection, bottom setting, and kiln setting, to insure a condition whereby the ware should at all times be subjected to a heat treatment of known properties, thereby placing a man in charge of this equipment who understood their use, and who in turn, taught the burners how to get results from such use.

There is no value in any measuring instrument unless properly applied and maintained, unless the results of such application be recorded in a systematic manner and such record be compared with the final results, and all things effecting or related to it.

All too often do we place ourselves in the position of self-deception, because we neglect to analyze and compare the information which we collect, and thereby many times injure, rather than benefit ourselves.

## A DISASTROUS FIRE.

The Brookside, (O.) Brick Co. at Cleveland met with a disastrous fire which nearly wrecked the plant, making a loss of $25,000, partly covered by insurance. The engine and machine rooms, being of fireproof structure, were the only buildings saved. The fire originated in an overheated dry tunnel. The American Clay Machinery Co. have the contract to put in a 60,000 steam pipe rack dryer and the company expect to have the plant completely rebuilt by February 1st. They report the Cleveland market this year the slowest for some years with an uncertain outlook.

## BURNS BRICK WITH GAS.

W. R. Barnhart, Jr., owner of the Wooster (O.) Shale Brick Works, has two good natural gas wells, one on each side of the plant, and is now burning, drying and running the entire plant with natural gas. A charter has been granted for the Wooster Shale Brick Co., and the present plant will be greatly enlarged.

## RETIRES FROM BRICK BUSINESS.

R. L. Mernagh has sold his stock in the Mt. Vernon (Ill.) Press Brick Co. to G. T. Ham and A. V. Smith. After being engaged in the brick business in St. Louis for a number of years, he organized the Mt. Vernon company in 1903 and has since been its president and manager. He has not yet decided what line of business he will take up.

## THE MARION LINE.

A new trade publication which should be in popular demand, is the handsome catalog just issued by the Marion Machine Foundry & Supply Co., Marion, Ind., describing the Marion line of clay working machinery and equipment. The book is in itself a handsome piece of printed matter, beautifully illustrated and artistically designed and contains much information of real value to clay products manufacturers.

The booklet opens with a complete description of the entire line of Rust-Clay Feeders and there are some strong arguments as a preface, explaining why the clay workers should use one of these perfected machines. The statement was made that the Rust Feeder will save the labor of one to two men and pay for itself the first year, from the wages thus saved, and with additional reasons explains the high quality of work, the thorough mixing and tempering of the clay and the uniform feed, preventing stock from clogging the disintegrator. The Rust feeder line has been perfected and is now manufactured in several different types to meet all requirements of plants of varying sizes. These include the "Standard," "Type A," "Type B" and "Type C" also the "extra heavy type A right and left spiral feeder," constructed especially for plants where a large capacity and heavy duty are required. Where it is desired to convey the clay off to one side, a special cross spiral attachment is placed on the feed end of the machine for that purpose. The Rust feeder is built for direct or geared drive and can be arranged to suit any conditions.

One of the strong arguments in favor of the Rust feeder is in its ability to temper the clay and mix same thoroughly before running into the disintegrator or brick machine. It draws the clay from the part of the hopper farthest from the disintegrator, thereby making the clay travel the full length of the spirals. The feed is very regular and this prevents the wear and tear on the disintegrator and frequent break downs, resulting from the old hand-feed method. The feed may be varied in amount at will, but it must be understood that the machine operates automatically and requires practically no attention and little power. The company is prepared to ship promptly. The installation of the machine is very simple, requiring no special changes in the arrangement of the plant. A large number of satisfied users give their opinions regarding the value of the machine in the new Marion booklet.

The Marion line of cutting tables, is also fully described in this new catalog, and both brick and tile men will be interested in this line of machinery. The particular merits and features of the No. 25 Marion Automatic Side Cutter and No. 15 Automatic End Cutter and No. 35 Automatic Tile Cutter are fully explained. The tile cutter is something new in the machinery line and presents points of special interest. One of its features is the saving it effects through eliminating the cutting off of stub ends the whole bars being continuously cut into the desired lengths. This cutter also permits the use of the complete capacity of the tile machine when making small tile.

The last feature of the catalog is the chapter on boiler room economy in which is fully described the operation and economy effected through the use of the Marion flue blower, one of the most valuable little devices ever invented for the boiler room. This flue blower effects a saving of at least 10 per cent in the cost of fuel and prevents much of the trouble and annoyance of dirty flues and its use greatly prolongs the life of boilers on which it is used. It is to be noted that the Marion Flue Blower is not a temporary device but a permanent installation and is always working and doing its duty while the boiler is in use, without involving any labor or annoyance or shutting down of the plant. The Marion Co. make a remarkable free offer regarding this blower which will doubtless be taken advantage of by many operators of steam plants.

A copy of the new Marion booklet will be mailed promptly on request by addressing the Marion Machine Foundry & Supply Co., Marion, Ind.

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## AN IMPORTANT ALLIANCE.

It is our privilege to announce in this issue of "Brick and Clay Record" an event affecting two well-known clay-working machinery concerns that must of necessity interest everyone in the clay-working world. We refer to the fact that quite recently an alliance has been formed between The J. D. Fate Company, of Plymouth, Ohio, and The Manufacturers Equipment Company, of Dayton, Ohio, whereby the latter becomes sales-agent for the complete line of The J. D. Fate Company's equipment. This places The Manufacturers Equipment Company in a position to take care of all inquiries as well as negotiate sales for that well-known line.

We certainly congratulate The Fate company on being able to place on its staff a concern having the energy, hustling abilities and knowledge of the work that are possessed by The Manufacturers Equipment Company. While this company is a comparatively new one, nevertheless, its members are thoroughly familiar with the requirements of clay workers, having had years of experience in the work, and we likewise extend our felicitations to it on the good fortune of being placed in a position to handle The J. D. Fate Company's well-known and complete line of brick and tile-making appliances, etc., that company having established for itself an enviable record because of the universal satisfaction which their machinery has given wherever installed, and also because of the painstaking manner in which they serve their patrons. All in all, we know of no working agreement of this particular kind that has started out under such favorable conditions, and we predict for both of the interested companies a success even beyond their expectations.

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## THEY NEVER FADE.

The fact that the Ricketson colors, in use for 15 years show no fading qualities is a good reason for the continuous line of pleased customers who use them in preference to any others.

These colors are made from the purest Bessemer ores by a special process which removes all the oxides that will not stand weathering.

The best brick work is often made to appear cheap and shabby by poor and fading mortar joints. Architects and builders should insist on having the best of mortar colors. The company's motto is: "We stand by our colors! red, buff, brown, purple and black."

Those using these colors will find it profitable to send for some of the literature of The Ricketson Mineral Paint Works. Milwaukee, Wis., which gives much useful information along color lines.

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## A SOFT CLAY RECORD.

Another record in soft-mud brick production is reported by a Staten Island, N. Y., firm, who state that they recently on a "New Haven" machine made 85,000 brick in one day of ten hours, using 7-brick moulds.

## FOR A TILE DRAINAGE BUREAU.

The establishment of a Western Drain Tile Bureau, the movement initiated at the Iowa State Convention, January 25th, should meet the hearty approval of every manufacturer of drain tile in the Middle West. The chief purpose of this Bureau will be to conduct an active and practical campaign for the education of the farmers of the Middle West to the advantages of underdrainage, and the superiority of burned clay drain tile. Such a movement should have the earnest support and co-operation of all those interested in drain tile manufacture.

It is generally conceded that while the various associations have been of great value to the clay interests, and the conventions have been of much benefit, yet that each line of clay products manufactured is of such importance that its best interests can be served only through organizations which will be devoted exclusively to each particular line. This has been demonstrated by the success of the organizations furthering the interests of paving brick, of sewer pipe, of building brick and of other special classes of clay products.

The drain tile industry has developed to a point where it would seem advisable that it should have a bureau or working organization of its own, and no better plan for such a bureau could be undertaken than that formulated by the organizers of the Western Tile Drainage Bureau.

The scope and purposes of this new organization are explained fully in the report of the Iowa convention appearing elsewhere in this issue, and we suggest that all the drain tile manufacturers of the Middle West read this carefully and then show their appreciation of the effort being made to further their interest by writing to Mr. C. B. Platt, the secretary, Van Meter, Iowa, giving him their encouragement, and that as soon as possible they become enrolled in the membership, thus taking an active part in the work to be conducted. Mr. Platt will be glad to reply to any questions which may be asked and will give full information to those who request same.

It must be understood that this new movement is not confined to the state of Iowa. The state boundry lines are not to be considered and the organization will be operated as much for the benefit of other Middle Western states as for Iowa. The assessment fixed at one-third of one cent per ton of production is very low and no tile manufacturer should hesitate to contribute the small amount required to help pay the expenses of a publicity campaign which will certainly result in furthering his interests and increasing his sales.

## THE DRAIN TILE PLANT.

### Read at a Meeting of the Northwestern Drain Tile Association, Toledo, O., by Geo. B. Drennan.

When I first received the request from your secretary, Mr. Rumsey, to address you at this meeting, I decided that it would be the very acme of presumption for me to even attempt to prepare an article that might be of any interest or profit whatever to you, but afterwards, realizing that the request was made in perfect good faith, I decided to attempt it, knowing full well that many of the things I might say would be severely criticised, condemned and perhaps ridiculed.

Mr. Rumsey, in his letter, asked me to talk to you, leaving out the subject of machinery. Now, to ask a machinery man to talk to you and leave out the question of machinery is like asking a minister to preach a sermon and leave out all reference to God or the Bible. However, I wish to impress upon your minds that what I shall say to you will not be said from a machine man's viewpoint, but it is just what I would say if I were a brother tilemaker.

The success or failure of a drain tile plant is due to various causes, and the success of a tile plant does not always depend upon the choicest location, the best market, the most perfectly designed and equipped plant, but very often, and in a majority of cases, upon the man who is the manager—one who first plans his work and then has the executive ability to carry out successfully and economically these plans; one who is not content to always run along in the same old groove, but is constantly on the alert to find some new method or appliance that will enable him to improve the quality of his goods and to produce them more cheaply.

Probably the principal cause of failure is poor judgment in selecting a location; the party promoting the enterprise has not exercised enough care in testing the clay and finds, to his sorrow, after it is too late, that the clay is full of lime-pebbles, is short or tender and difficult to dry or is unsuitable for other reasons for the manufacture of good, first-class drain tile, and the lime-pebble proposition is the most difficult to overcome; but there are still other reasons why many tilemakers do not succeed as they should, or as well as some of their competitors do, and in a great majority of cases these causes are wholly and solely the fault of the man who planned and erected the factory.

It has always been my opinion that of all the money spent by any party erecting a tile factory, the best expenditure was that used in investigating other up-to-date tile yards and getting the best ideas of other tilemakers, and, after doing this, in going to some good practical man who is capable of making a draft of a building, and after giving him your ideas and the results of all your investigation and the advice you have received from other experienced tilemakers, have him sift them all down to what seems the most practical, taking the good and eliminating the bad, and then drafting a plan, or several plans, from which to build the proposed factory, then using the one which appears to best suit your location. In selecting the man to make the draft of your building, be sure you have one who has had successful experience in operating a plant or one who has had years of experience in seeing and visiting clayworking plants, and I believe the latter is the best adviser.

Now, you may accuse me of throwing a bouquet to the machinery men, which would include myself, but, counting myself out, I am of the honest opinion that one of the very best advisers you could possibly have is some machinery man who has visited hundreds of plants and taken pains to observe the various good and bad features of them all. He will know which ones are successful and can tell you why they are so, and, contra-wise, he will know even better and, possibly by sad and expensive experience, which ones are failures or partial failures, and he can tell you why these are so.

He may tell you that the cause is unsuitable clay, but when he tells this once he will probably tell two or three times of other causes, but seldom of lack of market. He will say it may be from a poorly designed factory, and possibly he may lay the fault at the door of his competitor's line of machinery, but not often, or it may be he will say the cause is extravagant operation from a labor standpoint and improper office and sales management; but whatever the reason he may advance, he will come forward with a remedy, and he will tell you that the worst of all is faulty construction that makes necessary the employment of three men where two should and could do the same work if the plant were arranged with a view of economical operation.

The two great items of expense in a tile yard are labor and fuel, and as the question of reducing the fuel cost is without my province, I will not touch upon it, but leave it to the tender mercies of the kiln men, each and every one of whom will have an infallible remedy. Neither will I advance any theories in regard to any special line of machinery, as those might be considered personal ones, but I will say that the tilemaker who hesitates to install the very latest and most improved type of labor-saving machinery is making a most serious mistake and one greatly to his own disadvantage, even though it may seem that the cost of the same is excessive. If by so doing he can save the labor of only one man whose total wage during a working year of, say 250 days, is $375, and this is at the low rate of $1.50 per day, he can well afford to borrow the money and pay 10 per cent interest on it and still have a mighty good investment that will pay big dividends.

One of the extravagant labor points in the average tile plant is the clay pit, then the transporting of clay from pit to factory, and then comes the worst of all—getting it into the machine. The latter, however, is being overcome by the use of automatic clay feeders, but these can be used profitably only where the old hand-to-mouth method obtains, of working the clay direct from bank to machine. You may be told that this is quite the proper process, provided a modern pug mill or combined machine is used, and to a certain extent this is true, but I am quite sure that a goodly number of clayworkers will agree with me when I assert that there is no other method of so thoroughly preparing the clay and getting it of such even temper and nice plasticity as to properly pack it into a good old-fashioned soak pit and leave it there for several days. And there is to my mind another, and possibly a more important, reason why I would provide for a soak pit in my factory, and that is clay storage—the old-fashioned soak pit 8 or 10 ft. square that was, and still is, in use in the little country yard was all right and large enough for those plants where they emptied kiln on Monday, filled it on Tuesday, made tile Wednesday and Thursday, filled pit on Friday and went to town on Saturday, but in the present-day plant more storage is necessary. How many of you who work clay direct from bank to machine have been compelled to lay off work for an entire day, and possibly two days, because it rained all day and all the night before and the men would not dig clay in the rain, and then possibly the clay pit would be so soft and muddy that the clay could not be worked for another day or two? You who have had this experience may or may not realize that you lost the making of an entire kiln of tile and that you cannot make it up, for you all know that we can never recall our yesterdays. If you had provided your factory with a clay storage pit of good capacity, one that held clay enough to run your machine 5, 10 or 15 days, you would have been able to keep your plant going to full capacity in spite of storms, and, besides this, your clay would have had the advantage of a soak and tempering pit for a good long time.

A clay storage pit, properly arranged and constructed, gives not only the advantages enumerated, but it also is a labor-saver. Let the pit be built with the floor at least three feet above level ground and sloping slightly from either side to the center, and about 16 ft. wide by 40, 50, 60 or more feet long. Underneath the floor and along the center line of the pit arrange for a belt clay conveyor, with an opening the width of the conveyor belt proper the entire length of the pit, through which the clay is passed to the conveyor to be conveyed by it to the crusher, disintegrator, pug mill, machine direct or, even better still, into an automatic clay feeder, this opening to be covered with loose or removable boards running crosswise of the conveyor. We will say that we will start with a full pit of clay that may be 5, 10 or 10 ft. deep, according to how strong and well you have built, except that a space should be left at one end for a start, then let the man who is to feed the clay to the conveyor take up one or two of the removable boards and begin to pull the clay from the sides down through the opening thus made, onto the clay conveyor, and as the clay is fed out and the feeder advances towards the other end of the pit, replace the removable boards and as soon as there is sufficient room, begin to re-fill the pit and follow up until the feeder has arrived at the other end of the pit, then let him go back to the end where he began and work through again. This not only gives the clay plenty of time to temper, but provides for several rainy days, and let me say right here, that one man will feed more clay to the machine and do it better and more evenly in this way, than two men with shovels will if they must raise the clay a foot.

We all know or should know that the better the clay is tempered and prepared, the less power is required to run the machine that forms the tile, the better the machine will perform its work and the less liable it will be to break, the better the tile will dry, the better they will burn, the less broken and crooked tile you will have, the better the tile will sell, and the better your business will be.

I am not going to say anything special about the possible economies of moulding and preparing machinery, for clay working machines, like Kentucky brands of whiskey, are all good and every clay worker has his favorite machine just as ever Kentucky "Kernal" has his favorite brand of Mountain Dew, and it may be possible and highly probable that, no matter what machine you may buy, some day you may wish you had bought of the other fellow.

Look well to the machinery for thoroughly preparing your clay, and do not stint yourself in this line, and then look for any and all appliances for handling economically the ware from the machine through the various channels or processes of drying to the kiln and from the kiln to the yard or freight car. Buy and install anything in the way of a conveyor, an elevator or truck that can be had for a reasonable price and that will save time and labor, remembering that any machine that costs a thousand dollars, more or less, and saves the labor of one man, or rather dispenses with his labor, is one of the best possible investments that you can make, and remember also, that a good, well-built, labor-saving machine never begs to lay off on a Saturday afternoon, never gets drunk and never asks for an increase in wages.

Look well to all the machinery in the factory and also your power plant. If your power plant is not large enough to furnish ample power, and you are over-loading it, just remember that it costs more to get 30 H.P. out of a rated 25 H.P. plant than to produce 30 H.P. with a 50 H.P. equipment, and this extra cost may be enough to warrant you in trading your present power plant for a larger one and paying the difference.

Then when you come to the tile machine proper,—the one you are now using,—and know that its capacity is only, say 8,000 4-in. tile per day, and you are compelled to have a certain number of hands to operate at this rate, and you also know that you have drying and kiln space for a larger output, and also sale for more, would it not be the proper thing for you to throw out the present machine and get one of larger capacity, say of 12,000 4-in. tile? In nine cases out of ten, the same lot of men who have been handling 8,000 will handle 12,000. The same thing will hold good when you come to the kiln proposition. We will say, just for example, that a 20 ft. kiln will hold 20,000 4-in. tile, but a 30-ft. kiln will hold 2¼ times as many and the 30-ft. kiln will not cost 2¼ times as much to construct, neither will it cost 2½ times as much fuel, and the same man who fires the 20-ft. kiln will fire the 30-ft. one. Now, does it not look as though there could be a large saving made at the kiln end of the factory—enough, perhaps, to warrant you in tearing down the old small kilns and building larger ones? Of course, the present kilns may be amply large enough for your moulding and drying capacity, but are you going to be satisfied with always running along in the same old groove and on the same old line? Are you going to be satisfied without progressing any? Are you just going to "stand pat" on the present proposition? If so, remember what happened to those "stand-pat" Republicans this last election day.

Many of the old methods which have been in use in the manufacture of drain tile have become obsolete and have given way to the more advanced methods, and this is especially true in regard to kilns and burning. The brickmaker has, as a rule, been more progressive and advanced than the tile maker in this particular branch of the clay working business. The progressive clay worker no longer depends on burning just so many hours or on just so many inches of shrinkage or on a certain color of the fire as it appears to him through a small peep-hole, but he depends almost entirely upon Seger-cones, pyrometers and other modern appliances that are used to determine the degree of heat produced in the kiln at different stages in the process of burning.

How many of you have come down to the plant in the morning and found that a burning kiln had not come along as fast nor as well as you thought it should have done, and you wondered why, and began to inquire for a reason and perhaps imagined, and often rightly so, that the burner had either loafed or slept on the job and allowed the fires to get down or perhaps nearly out, but you weren't quite sure enough to call him down. If you had provided him with the various appliances used in scientific burning, he would have been to a certain degree put on his mettle and would have paid more strict attention to his work, and then if you had provided for your own satisfaction, one of those little instruments which automatically records every change of temperature in the kiln, you would have known to a certainty in the morning, by looking at the line and noting whether it was straight or wavey, if the burner had been on the job every minute. This little instrument is a sort of watchman or private detective, and the burner, knowing he is under surveillance, is incited to try for more perfect burning, which means a larger per cent of perfect ware, which means larger profits—profits which will soon pay the comparatively small cost of any and all of these appliances.

Look your business square in the eye and say to yourself "this year I am going to make better tile than I ever did before, and I am going to make more of them, even though I may be compelled to purchase different equipment to do it, and even go in debt for all or a portion of it, for I am persuaded that it will make me enough more money to warrant it." Do not think for a minute that I recommend you to rush head-long into debt, but be reasonably conservative, use good business judgment, but not the kind that allows that one little old dollar that you have in your pocket to shut out of view many more dollars, if you only let loose of that one in the right way.

Let progression in business be your watch-word and motto and always "stand pat" on that proposition, and perfect success will be the ultimate result.

## WILL NOT WITHSTAND ALKALI.

A letter from Gustav Voelker, a well known brick works engineer now connected with a new enterprise at Deary, Idaho, informs us that he has been making a study of drain tile conditions in the state of Idaho for the past two years and finds that cement tile are an absolute failure. Owing to the strong alkali soil their life will not exceed two years.

He has taken the matter up with the faculties of agricultural universities and will have hearty support from these institutions in the manufacture of drain tile, both glazed and unglazed. Buildings have already been begun for a terra cotta plant in connection with the making of drain tile.

## TILE PLANT CHANGES HANDS.

The Hibbard Drain Tile Co., at Bremen, Ind., has sold its plant to Mr. J. A. Long, of Portland, Ind. This company was originally known as O. E. Dietrich & Bro., which was changed later to the above name.

## WEST VIRGINIA TILE FACTORY.

The Columbia Tile Company is the latest of Grafton, W. Va.'s, industries, and the organization of a new company has been perfected. The company elected Charles R. Durbin president; Charles W. Steele, secretary; William Nichols, of Wellsburg, general manager.

The new company has been organized and chartered under the state laws for the manufacture of a very high grade of glazed tile and for this purpose the plant of the Empress Glass Co. in the First ward has been taken over by the new company.

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The Acorn Brick & Tile Co., of Albert Lea, Minn., has been incorporated with a capital stock of $250,000. Beecher Ward, of Fairmont, Minn., is president of the company; H. E. Skinner, vice-president; Alfred Christopherson, secretary; and C. E. Paulson, treasurer. Early in the spring a plant will be constructed at Glenville, Minn.

Mr. G. G. Wheat announces the severance of his connection with the Northwestern Tile & Clay Products Co., at Emmetsburg, Ia. Mr. E. B. Persons has become leading stockholder of the company and will be manager. A. J. Wheat will remain as superintendent.

# THE PAVING BRICK INDUSTRY

## OHIO PAVING LEGISLATION.

The principal topic in brick circles in Ohio is the action to be taken by the Ohio General Assembly now is session looking towards settling the matter of the bond issuing limit of municipalities. Until the matter is settled paving brick men will be unable to do much as most of the municipalities in the Buckeye State are up against the law when it comes to paving in the spring unless the legislature takes the expected action. It appears that at the last session of the Ohio General Assembly a law was enacted fixing the bond issuing limits of cities and villages at 1, 2½ and 5 per cent. In other words municipalities could issue bonds to 2½ per cent of the tax duplicate without a special election and up to 5 per cent of the duplicate with an election.

This law took the place of a law which placed the limits at 4 and 8 per cent respectively. The new law was passed on the assumption that the new duplicate would be in effect Jan. 1, 1911, when the law became effective and the new duplicate was to be much higher as it was to be based on the full value of both personal and real property. The new duplicate has not yet been prepared in any of the Ohio municipalities and will not until after April 1 and until such time no bond issues can be made for improvements.

City Solicitor Weinlein of Columbus, assisted by a number of city solicitors of the state, has prepared a bill which has been introduced in the General Assembly providing that the new law shall not become effective until after the new duplicates are completed. It is believed the bill will be passed.

Paving brick men as well as other material men are behind the bill and in fact most of the members of the legislature are believed to be favorable to the proposed law. Many of the Ohio municipalities are going ahead on the assumption that the bill will become a law and the preliminary legislation for paving of streets is now being done.

Columbus, O., specifications for brick paving differ very little from those adopted at the recent meeting in New York of the organization of city officials for standardizing paving specifications, which City Engineer Henry Maetzel of Columbus attended, as a member of the brick paving committee. It was at his suggestion that the convention, after a hot argument, left it optional with city engineers to use either cement grout or tar filler in brick paving, which plan is in force at Columbus.

## TO MAKE PAVING BRICK.

It is said a stock company is being organized in Sharon, O., with a capital of $100,000, to take over the J. V. Rose fire brick plant in Brookfield township, O. Vitrified shale paving block will be manufactured. The plant has not been in operation for more than a year. F. R. Kanengeiser, of Youngstown, who until recently was general superintendent of the Bessemer Limestone Co., is promoting the deal. A large amount of new machinery will be installed. There is an abundance of shale in eastern Ohio and the projectors are enthusiastic.

## ANNUAL MEETING OF PURINGTON CO.

At the annual meeting of the Purington Paving Brick Co., held recently at East Galesburg, F. G. Matteson was elected president to succeed W. S. Purington, who recently resigned.

At the stockholders' meeting the following directors were elected: D. V. Purington, of Chicago; F. G. Matteson, George C. Prussing, Chicago; C. D. B. Howell, Chicago; W. E. Phillips, P. T. Walsh, Davenport, Ia.; and Charles H. Chamberlain.

The directors elected the following officers: D. V. Purington, chairman of the board; F. G. Matteson, president; George C. Prussing, vice-president; C. D. Howell, vice-president; W. H. Terwilliger, secretary; C. H. Chamberlain, treasurer; W. G. D. Orr, general manager.

## PAVING RECORD IN SOUTH BEND.

Brick pavements costing $55,746.99 were laid during the past year at South Bend, Ind.

Detroit, Mich., will use 10,000,000 paving brick next season. The price of paving brick there averages about $20 per M. Bids were received from eighteen contractors, each bid being for 1,000,000 pavers.

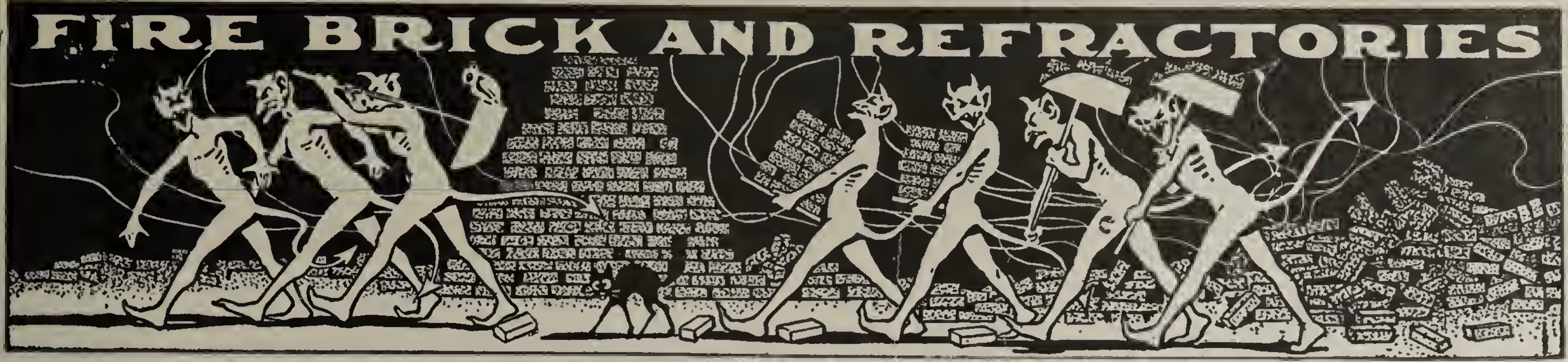
## PAVING NOTES.

The year 1910 was a prosperous one with the Albion (Ill.) Vitrified Brick Co. No trouble was experienced in disposing of the entire product of the plant at satisfactory prices, and the outlook is highly promising for the year 1911. The company has just completed a large winter shipment to Jonesboro, Ark. Last winter a large number of cars of pavers were shipped to Memphis. Work has begun on the installation of a waste-heat dryer. In December the stockholders were paid a 20 per cent dividend.

The Albion (Ill.) Shale Brick Co., which was incorporated with a capital of $20,000 and afterward increased to 200,000, has not yet disposed of the entire amount of its increased capital stock and does not intend beginning building operations until this is done. The company has an ideal location, 40 acres of shale lands adjoining the Southern Railway station. A big reservoir of pure water has been secured above the building site, the grounds have been graded, the shale banks opened and tested and other preliminaries arranged, and it is expected that the capital will be secured in time for the erection of a well equipped modern paving brick plant this summer

## WILL MAKE PAVERS.

The Duffney Brick Co., Troy, N. Y., has added machinery for paving brick. About 13,000,000 brick were turned out last year. At the annual meeting of the stockholders and directors of the company the following officers and directors were elected: President, Dr. James M. Percell; vice-president, Alvin E. Van Veghten; secretary, S. J. Moore; treasurer, Richard A. Moore; auditor, Elvin E. Van Veghten; directors, R. A. Moore, S. J. Moore, Lawrence Farrell, Joseph Oliver and William H. Duffney, Jr., J. M. Percell, A. E. Van Veghten.



## SHORT TALK ON REFRACTORIES.

By H. A. Phillips.

Ceramics, in general, have received much attention for centuries, as is proven by the perfection in art and delicacy, as well as usefulness of pieces of pottery that have been found by archaeologists and others. In fact, the style and workmanship of the pottery thus found is one of the standards for determining the age of the uncovered ruins. Among other articles found in these places have been samples of the metalworker's handiwork for which he required high temperature and it is most logical to suppose that fire clay was the material he used to control that heat.

By authentic records we know fire brick was made both in England and in the American Colonies prior to the revolution. In America, New Jersey, Pennsylvania and Maryland divided the honors and these states still retain the supremacy, although nearly all the states now produce some fire brick and many are made in foreign countries. In a recent issue of the "British Clayworker" it was stated that in England the average temperature at which fire brick is burnt is only 2,311° Fahr. and in Germany from 2,414° to 2,674° Fahr. From personal experience, I believe the average in America is nearer 2,700° Fahr. When the fire brick is to be subjected to no greater heat in practice, it is unnecessary to give it more in the initial burning, but there is no agent of the mechanic about which he has less positive knowledge than the degree of heat he is using. Care should be exercised that the initial burning leaves a good margin, especially as there is a point with almost all fire clays where only a slight increase in temperature will have an effect out of all proportion to what the same amount would have at any other stage.

The great majority of fire brick in use until a comparatively recent time was of indifferent quality, but about 1830, when Beaumont Neilson first made use of the hot blast in connection with blast furnaces, a transition in the manufacture of iron and steel was started and has been wonderfully advanced under such men as Sir Henry Bessemer, Sir William Siemens, David Mushet and others, all of whom demanded better, or we might say different, refractories to meet the conditions they created. That these conditions were met is due to the study and efforts of Prof. Edw. Orton, Jr., H. O. Hoffman, Bischoff and a few others who have given them special attention, also to Seger, Hecht, Ries, Kramer and Wedgewood who have done so much for all branches of ceramics.

Bischoff summarizes the destructive agents as follows: temperature, sudden cooling, fire shrinkage, crushing load, slagging action, action of gases, crystallizing and other mass changes. These conditions have brought forward other refractories as well as fire clay; the most prominent of these being chrome, silica and magnesite, but these will be mentioned only incidentally.

Fire clay in its pure state contains only three elements, viz.; silica, alumina and water, but in nearly all clays there are some impurities in the shape of iron, sulphur, lime, magnesia, soda, potash, etc., which affects the clay in proportion to the comparative amount of each contained. A knowledge of the amount of any one of these contained in a mass does not give a fair estimate of the value of the mass, but must be considered in conjunction with the proportions of the other ingredients. As a discussion of the effect of impurities would be limitless, we will confine ourselves to the proper elements, and, as it is by driving the water out by heat that the clay is changed to brick, nothing need be said about it; either silica or alumina is very refractory in its pure state and their relative proportions determine for what purpose the clay is best suited. It has been quite a popular idea that the refractoriness of fire clay was increased by the addition of free silica, but this is erroneous. Lenkenbeck states that refractoriness is regularly decreased until a proportion of seventeen of silica to one of alumina is reached, when the composition fluxes at the lowest point Seger classes it as fire clay.

Some years ago I was experimenting, endeavoring to work out a special mixture to meet a peculiar combination of conditions and tried the addition of free silica to a combination of grog, Jersey plastic clay and a composite mixture from which we had generally been obtaining excellent results. The customers to whom these shapes were sold, always sent us all their old fire brick, so we knew the contents of our grog. The first lot of shapes made with the free silica added were little different from the same mixture without the silica, but as we proceeded, each lot of grog contained a trifle more of the silica and, finally, the product became as dead as a sponge and ability to withstand heat was greatly reduced.

Refractory materials may be classed into groups according to their chemical behavior:

Acid substances are those which, from the presence of a considerable quantity of silica, will combine readily with basic oxides. Among these may be mentioned dinisrock, quartzite, flint, sandstone, ganister, sand and siliceous fire clay (silica contents over 60 per cent).

Neutral substances are those in which the acid and basic constituents are so balanced that the substances combine with neither silica nor the basic oxides; or in which the substance itself is neither acid or basic. The only important members of this group are graphite and chromite. Some fire clays might be considered neutral in composition, but nearly all are acid and, if measured for affinity of bases, are best considered as acid substances.

Basic substances are those in which there is no silica or, at any rate, present in such small quantities that the power of the basic oxides predominates. Among these may be mentioned lime, dolomite, limestone, magnesite and bauxite. As a rule they resist the action of metallic oxides, but are readily attacked by silica at high temperature.

A knowledge of these and many other chemical conditions is important and the physical conditions must be no less carefully considered.

Plasticity determines the amount of water that will be required and this is an item of cost that must be considered in some places; also largely decides the process of manufacture by which the best results will be obtained.

Air and fire shrinkage show the proportionate amount of non-shrinkables that will be required; also effects process of manufacture.

Incipient fusion, vitrification and viscosity show refractoriness and give information that will enable one to work out combinations of various materials that will successfully withstand certain destroying agents. By carefully noting the changes that take place at different temperatures, you will generally find a point at which the change is out of all proportion to those at other points.

In addition to the general conditions, above mentioned, there are many special ones. One of the most common one is heat conductivity. Generally the poorer one is desired, but in some cases the opposite is the case, for instance muffles, which are used to heat objects that would be ruined by direct contact with flame or burning gases. Some clays are much better conductors than others, but it is the general practice to use carefully graded non-shrinkables with plastic clays; other mixtures of the same materials have been used to make fire brick shapes that would stand sudden and extreme changes of temperature that appear almost impossible. As demonstrations of these two features, we will take the case of the false-tooth makers when they changed from coal furnaces to others that used oil as fuel, they found that the teeth of certain compositions did not burn to the same shades as formerly and it was necessary for them to change their mixtures. This effect was from one of two causes, either the walls of the muffles for the oil furnaces, which were thinner, permitted the heat to act on the contents of the muffle differently or the gases of combustion were able to filter (if such a term is permissible) through the walls, bodily. To show the possibilities in withstanding many and great changes in temperature, a customer of the Boulter Mfg. Co., Philadelphia, reported that a dental slide that had been sent to him with others, had been used 129 times. This means that it was taken from a temperature of approximately 80° Fahr., but in a muffle where the temperature was about 3,000° Fahr. and returned to the lower temperature 129 times without breaking, in probably twice that many days.

Both the manufacture and use of muffles covers a very large field. For dental laboratory work muffles, many of which weigh less than one ounce, are used in electrically heated furnaces, others are heated with oil or gas. Many shapes and sizes are used by chemists, metallurgists and, in later years by many metal workers. These are generally in one piece and vary in weight from one pound to about one hundred pounds. From manufacturers of sanitary and other enameled ware comes a demand for an entirely different style of muffle, so large that the only practical way to make them is in sections with tongue and groove edges to make gas proof joints and paneled to permit heat to pass through without weakening the structure. In determining the size of these sections, as well as those for any other setting, it must be borne in mind that it is advisable to use the largest pieces that can be conveniently handled under the conditions where the sections are to be assembled and that will not be so large that unequal expansion and contraction will cause them to crack.

Too little consideration is given to the effect of unequal expansion and contraction on fire brick. A notable instance of this is in arch constructions at firing doors, where many boiler owners have had special one-piece lintels made, after a few experiences with arches made of regular nine inch shapes and clay joints collapsing. The best construction yet devised for this purpose is composed of tapered blocks with a tongue on one side and a corresponding groove on the other to break joints without the use of any clay and to strengthen an arch already properly formed by the taper on each section. This construction has been worked out to such a nicety by the Baltimore Retort and Fire Brick Co., that by carrying only sixteen different shapes, they can supply from stock, nearly any practical arch, with clayless joints about 3 inches apart and, that is independent of piers.

While on the subject of boiler settings there is another specialty, made by the same company that is worthy of mention, as it shows the superiority of simiplicity. Nearly all methods of forming arch over combustion chamber of return tubular boilers have two serious objections, viz: iron or some other metal is required and they lack sufficient elasticity. The special construction referred to consists of a rectangular fire brick block with a groove on one side near the end and a curved fire brick tile with rabbet on the long edges and convex short edges. The block is set in the rear wall with groove extending in and up, in this is rested the end of the tile so the other end will lean against the boiler head immediately above the top row of tubes. This arrangement is such that no possible expansion or contraction of the boiler could either dislodge the arch nor cause any pressure against the rear wall.

Fire clay or mortar is required for nearly all fire brick settings and while the maker of the fire brick does not ordinarily do the setting, he should use every effort to have the same kind of clay used for mortar as that of which the brick are made, also he should object to the use of salt and other alkalies in the clay, as they have a tendency to reduce the fire resisting qualities of the brick as well as the joints. While it is improbable that a clay will be used that will contain elements that will readily leave it to combine with some of those in the brick and thus reduce the refractoriness of the brick, such a thing is possibe and to prove it to your customer when he "jumps you" about the "bum bricks" you sent will be a pretty hard matter.

## NEWS NOTES.

The output of the Knauff & Esterbrook Co., at Cleveland, O., is confined entirely to fire clay products. Fire clay brick for all purposes and also fire clay sleeves, nozzles and runner brick are their specialties. Their capacity is about 4,500 M. per year.

The Columbus (Kan.) Tile & Brick Co. has bought the plant of the Columbus Vitrified Brick & Tile Co. and have started operations. The company is incorporated for $20,000, fully paid up. L. J. Slease, president; Geo. Hood, vice-president; M. A. Householder, treasurer; Fred Baldwin, secretary, and E. D. Whiteside, general manager, are the shareholders.

## A TOO COMMON OCCURRENCE.

Within half a minute after the first rumblings were heard the entire interior of a three-story reinforced concrete store and office building being constructed on Main street, Montesano, Wash., collapsed. Eight workmen were about the premises, but none of them were injured. One of the men who had just mounted the roof of the structure had a narrow escape, landing unhurt.

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The Woodburn (O.) Tile & Brick Co. has decided to increase its capital stock from $12,000 to $18,600.

## TRENTON NEWS NOTES.

Trenton, N. J., Jan. 28.—All clay working plants in this district are working full time, and as a result a busy year is in sight. Not only are the potteries going full time, but the electric porcelain plants, tile factories and the stoneware plants are well filled with orders.

Improvements that will cost over $60,000 have been started by the Monument Pottery Co., and early in February the corporation will appropriately observe its fifteenth anniversary.

An annex, 60 ft. wide by 106 ft. long, and two additional kilns, of large capacity, are to be built.

The plans have been drawn by Architect W. W. Slack, and bids will be received this week. If the weather is favorable work on the contract will begin early next month.

The Monument Pottery Co., of which Charles Weelans has always been the general manager, has made rapid strides and is now one of the most important concerns of its kind in the United States. When the two new kilns are completed it will have twenty-six in all.

Besides the improvements being planned for the Monument pottery, plans have been prepared for additions to the plant of the Elite Pottery which will cost about $1,000. The Trenton Potteries Co. will build a brick addition to its plant at a cost of over $2,000.

Electric porcelain manufacturers here have received a report from the electric porcelain manufacturers in the West which has to do with the standardization of a number of small pieces of that class of ware. While all of these different pieces are used for the same class of work, yet many of them are made just a little different. It is aimed now to make all these pieces from the same character of die, hence the meeting of the western manufactures, and the reception of the report by the eastern manufacturers.

The Lambertville Pottery Co., of Lambertville, N. J., has just been incorporated with a capital stock of $50,000, of which there has been subscribed $21,250. The company has been in business for several years, and the incorporation with this capital means the extension of its business.

A six-kiln pottery is to be erected by the Yellow Rock Pottery Co., of Philadelphia, at Bridesburg, and construction is to commence at once after plans just completed by Samuel Hawley. The completion of this plant will mark the operation of the largest yellow ware and Rockingham pottery in the United States. The plant is to be built in such a manner that when additional capacity is required, such may be added without disturbing any other part of the plant. The making of ware is expected to be started not later than May 1.

D. William Scammell has been admitted as a member of the firm of the Maddock Pottery Co., of this city. Mr. Scammell has been identified with this concern as a salesman for many years, and has visited every state in the union showing these lines. He began his career with the Cook Pottery Co. many years ago, starting as a clerk in the business office. He entered the firm by buying the stock formerly held by Thomas P. Donoher.

At Cannonsburg, Pa., the new six-kiln plant of the Cannonsburg Pottery Co. will be placed in operation. The W. S. George Pottery Co., of East Palestine, O., control this plant, together with the original pottery at Cannonsburg.

## EAST LIVERPOOL ITEMS.

The Colonial Pottery Co., of East Liverpool, has hit upon a scheme to save gas consumption in the firing of kilns, which gives promise of being widely copied by other manufacturers. Heretofore three burners were used in each fire box. The Colonial company thought two would be enough, provided more air was permitted to enter the fire boxes at the same time. As a result, one length of four-inch sewer pipe was laid into the kiln through the fire box, into which the gas burner was extended. The entrance of the gas into the kiln drew an immense quantity of air into the pipe, which permitted a remarkable combustion, and when lighted resulted in an intense heat, far greater than heretofore obtained. The firm saved from $10 to $20 on the firing of the first two kilns so arranged, notwithstanding the fact that the gas prices have been advanced 10 per cent.

The A. E. Hull Pottery Co., of Crooksville, O., has installed an electric equipment, which is the only plant in that district so arranged. The plant is not entirely lighted by electricity.

Thomas Carr, president of the Warwick China Co., of Wheeling, W. Va., has resigned that office, but will retain his interest in the company. He will remain "on the job" indefinitely, however, in an advisory capacity.

Application has been made by the Kiss Art Pottery Co. to the Secretary of State of New York for a charter, the capital stock being placed at $9,000. For several months Charles Kiss has been experimenting with a new grade of art pottery lines, and now that he has completed his experiments a plant will be erected at Sag Harbor, N. Y., where ware will be made by a secret process.

At Frankford, Ind., the Diamond Pottery Co. has been incorporated with a capital stock of $12,000. The incorporators are J. C. B. Beatty, G. K. Beatty and W. S. Fisher. The Beattys are brothers and were formerly from East Liverpool. The first named has been connected with new pottery concerns from time to time, and was more recently connected with the Sebring interests of Sebring, O., as a pottery salesman and more recently with the Cartwright Bros. Pottery Co., of East Liverpool. The fact that he plans to build a new plant in Indiana will be read with considerable interest by the trade.

Western electric porcelain manufacturers are making an effort to standardize a number of small items they manufacture, and a report has been made to the eastern manufacturers for their opinions. It is claimed that only a niche has to be changed here or there on the dies to have all the items of a uniform character. Final results will be announced at an early date and during a meeting to be held in Pittsburgh.

## CLAY SCRAPINGS.

The Sheldon Brick Co., Urbana, Ill., has begun the notable improvements on its plant. The cost is expected to be $25,000.

Messrs. Will Randolph and Fred Smith are making arrangements for the establishment of a new brick plant at Huntsville, Tex.

The Kiss Art Pottery Co., at Sag Harbor, L. I., N. Y., has been incorporated with a capital stock of $9,000. The incorporators are Charles Kiss, Calvin E. Fritss, Wm. C. Greene and others.

## SAND-LIME BRICK IN GERMANY.

(From Consul General Robert P. Skinner, Hamburg.)

The manufacture of sand-lime brick (called kalksandsteine in Germany) has assumed large proportions in the last few years, and the great improvements effected in processes of manufacture amply justify the adoption of this building material in the United States. From 1897 to 1902 alone 80 plants were established in Germany for the production of these brick, and there are now said to be 280 in operation. Hamburg firms producing kalksandsteine are satisfied with the business results.

Ordinary sand-lime brick sell at an average price of 2 marks ($0.476) less per M than clay brick. The cost of production is said to be 9 to 12 marks ($2.142 to $2.856) per M, but it is difficult to generalize on this, as no two localities are situated alike as to raw materials. In 1902 the German Reichstag purchased 9,000,000 brick of this kind, made by the Schwartz process, for army buildings at a saving of $20,000 over clay brick.

The elementary facts in the brick business are that clay does not exist everywhere, whereas sand is found almost everywhere and can be used at a lower cost. The original method of manufacture was as follows:

> Fat lime slaked to a thick milk is mixed with 6 to 12 times its own quantity of coarse sand and then carefully kneaded either by hand or in a mixing machine. Brick were then formed in an ordinary clay press and after 24 hours, being then slightly dry, were stacked together and assumed sufficient hardness after three to four weeks. The hardening process is accelerated by dipping the slightly dry brick in a very thin solution of silicate of potash.
>
> Thus a very cheap material can be produced for agricultural buildings where lime and good sand are available. The brick are frost proof and rather compact, and no extensive machinery is required. Lime sand brick produced upon an industrial scale are the pressed product of a complete mixture of lime and sand hardened under steam pressure of an average minimum compressive strength of 140 kilos per square centimeter (308.64 pounds per 0.155 square inch). This mortar contains 5 to 8 per cent of lime, and upon being pressed into brick—which are then exposed to a steam pressure, usually under 72 atmospheres during 8 to 10 hours—the brick can be used at once.

The foregoing process is based upon the discovery, in 1880, of Dr. Michaelisin, that salicylic acid can be decomposed; that is to say, can be caused to form hydrated silicate of lime by chemical combination with lime, from hydrate of lime only in a very high temperature and in the presence of steam. This high-pressure process has been developed in Germany since 1898, and it is believed that from 800 million to 1,000 million brick of this kind are being manufactured annually.

The various processes are distinguished from each other by the method of treating the lime. In some the lime is completely slaked to powder or paste before being mixed with the sand, this being the ordinary hydrate procss. Elsewhere the lime is ground to powder (quicklime powder), then mixed with sand, and then slaked. The hardening of the brick is always done in the same manner—in a hardening boiler. According to the first, or hydrate process, the mixed material remains at first amorphous, and then gradually becomes crystalline, whereas in the quicklime process the mixture assumes a crystalline form immediately, which is said to be why the brick possess a greater solidity from the beginning.

In 255 tests the compressive strength varied greatly, the average, however, being 153 kilos per square centimeter (337.30 lbs. per 0.155 sq. in.), which is the tenacity required in a brick of good quality.

The loss of strength through the absorption of water averaged 14 per cent, and from the effect of frost 17 per cent. The average absorption of water amounted to 14.9 per cent weight and 26.3 per cent volume, percentages also less in the case of lime-sand brick than with clay brick. All brick tested proved to be frost proof. In fire tests and in practical experience these brick have shown the same properties as clay brick in regard to the influence of fire and water used in extinguishing it.

Fireplaces, factory chimneys, ring ovens, etc., have been constructed with lime-sand brick with good results. The adhesive property of the mortar on the brick has been tested, by using the same kinds of mortar on lime-sand and clay brick, the results being generally in favor of the former type of brick.

Because of their regular form and uniform dimensions, these brick can be laid more easily, and can also more readily be cut. This regularity of form and their trim appearance has led to a frequent use of lime-sand brick.

## GRANITE BRICK CO. MAKES IMPROVEMENTS.

A visit to the plant of the Granite Brick Co., Columbia, S. C., reveals that vast improvements are being made and it is the intention of the company to have the most modern plan available for the manufacture of building and ornamental brick as well as the vitrified variety for street paving.

The plant of this company is located on the Southern railway at the four mile post of the Columbia and Spartanburg line, just beyond the Ridgewood lake properties.

During the past five weeks five cars of machinery were received and a large force of men are at work placing one of the Freese patent down draft kilns for burning brick. The heating arrangement is an interesting study, the distribution of heat being through brick tunnels underground. All buildings are of brick construction that the operation of the plant will not be interrupted by unfavorable weather.

M. Demptsey, from New Jersey, an expert in the manufacture of brick, has been made superintendent of the plant.

It is expected that the output of the plant will be placed on the market early next spring.

## SAND-LIME NOTES.

The Chicago Brick Machine Co. has recently furnished a large supply of Elwood presses and machinery for the Plant City (Fla.) Granite Brick Co., which has recently remodeled its plant. A plant was also built for the Gary Granite Brick & Stone Co., Highlands, Ind., by the above company.

The Silica Brick & Stone Co., Alexandria, Va., has been incorporated with $50,000 capital stock. The officers are: J. H. Cranford, president; Percy Cranford, secretary, both of Washington, D. C.; R. G. Filbert, Philadelphia, Pa., and C. M. Field, Rutherford, N. J.

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### OUR EASTERN LETTER.

New York, Jan., 25.—The Eastern market for common brick is strengthening. Since January 1st, prices have moved from $4.75 a thousand, in cargo lots, along side dock, N. Y., to $5.50 a thousand, top. This price is for covered cargoes not held on summer contracts. The quotation given by agents in this market today for kiln run brick is from $5.25 to $5.50. The prices ruling for Hudson river common hard brick during the first three weeks of 1910 were $6.00 to $6.25 during the first week, $6.00 to $6.50 second week and $6 to $6.75 third week. Raritans ranged during the same period from $5.00 to $5.50 during the first two weeks to $4.00 to $4.50 in the third week. During the first three weeks of this year the Raritan river products have not been on the open market and the quotation being made by Sayre & Fisher Co. is merely a nominal one of $5.75 to $6.

The cause of this condition is partly shown in the building records for the first three weeks in January with a comparison of those in 1910:

Firty-one buildings have been projected in Manhattan and the Bronx since January 1st, 1911. The first three weeks in January, 1910 showed a total of 124. Brooklyn borough makes a better showing, however, with 109 building plans filed as compared with 172 in the first three weeks of January 1910. In all three boroughs the figures are below those covering Queens Borough for the same period. Already this year there have been 179 building plans filed. At this time last year there were only 70. A comparison of values is enlightening as showing where brick and terra cotta producers in the district may look for the major part of this year's business:

| | 1911 | 1910 |
|---|---|---|
| Manhattan Borough | $11,033,200 | $5,710,000 |
| Bronx Borough | 433,400 | 1,807,900 |
| Brooklyn Borough | 648,588 | 981,950 |
| Queens Borough | 1,217,738 | 513,440 |
| Total for entire city | $13,331,926 | $9,013,290 |

These facts alone should convince clay products manufacturers that fundamentally conditions are ripe for a satisfactory year. In 1909, an exceptional year, the total value of buildings projected during the first three weeks for Manhattan, Bronx, and Brooklyn (Queens Borough figures not being computed comparatively at the time) was $4,700,640. Allowing an extremely liberal estimate of $1,000,000 for Queens in that period in 1909, the value of projected buildings for the first three weeks in 1911 would still be $7,631,286 over that year's totals.

### Low Prices Caused by Over Supply.

The fact remains, however, that prices are way below cost but the reason is made clear by the report of the Hudson River Counting Committee appointed by the Hudson River Brick Manufacturer's Association, through its various clubs or district organizations. This report showed that the total number of available brick in the Hudson river sheds today is 342,000,000. Last year the total number of brick left unsold by the fifteenth of January was 210,000,000, and quotations were being made on kiln run brick at $6.25 to $6.50. In other words, the market is very much over-supplied and at every thaw more brick come down the river from Haverstraw and even from Newburgh. Every manufacturer tells his agent to sell his brick as fast as he can and the result is that the market is demoralized and there seems to be no hope for checking this perilous downssliding.

### A Warning to Hudson River Manufacturers.

"Brick and Clay Record's" correspondent has just made a careful survey of New York and Metropolitan district building material conditions. He found by statistics and by reports from leading companies and architects that there was practically no hesitancy in building projection in this vicinity. Cheap building material is, in a measure, responsible for this. Portland cement manufacturers are waging a ruinous battle resulting from the disbandment of the American Association of Licensed Portland Cement Manufacturers and prices have been cut fifteen cents a barrel. The cost today to produce Portland cement at the mills is 73 cents. It is being sold in Newark, N. J. by dealers as low as $1.08 net. And manufacturers are allowing 10 cents for bags, whereas they allowed only 7½ cents before December 31. Here in the city dealers are afraid to take Portland cement business, because they fear that the action of one company in selling cement direct to the consumer will be followed by other companies if they wage their war so far that they cannot longer provide a margin for the dealer. This means a better demand for common and face brick and terra cotta fireproofing and architectural products. Therefore, Hudson River Manufacturers should not be in too great a hurry to market their brick and should not crowd their agents too hard to get any price they can.

### Follow the Lead of the Steel Men.

Common brick producers may well profit by the investigation recently made by the United States Steel Corporation. Trained experts were sent into this city to investigate building conditions. Some of the data they obtained was procured from the writer who tried to show them that owners were not holding back building operations because they thought material prices were going lower. In consequence the Directors of the Steel Corporation ruled that prices would not go lower. In consequence the railroads are again in the market for rails and structural steel and fabricating shops are increasing their capacity. The United States Steel Corporation before January 1 was operating at 40 per cent. Today they are running at 50 per cent of capacity, and pig iron producers are blowing in new furnaces to take care of the steel mill's requirements.

Common brick men can profitably hold their brick in check until the market gets fairly started. There are only 58 covered cargoes in this market today and except for the Washburns, Rose and the Empire Brick & Supply Co., no one has more than five and many of them have only one or two reserve barge loads here. Some companies have ten, twelve and twenty cargoes but they are holding them for delivery on last summer's contracts and they cannot be figured in the market count. Of the available supply on hand under cover there are not more than thirty actually on the boards for sale.

### What the Sales Records Show.

Why prices are so low under such conditions is a natural question. The dealers are well informed regarding the oversupply up the river. They know that they can control the price situation. They know that with 342,000,000 brick on hand there is going to be a wild scramble to get that material into the market and they know that as soon as navigation opens there will be such an influx of brick that the market will not be able to take it all. The printed list sent out each week from No. 18 Broadway gives the current price as $5.25 per M and that is as high as they will go.

The law forbids the manufacturer regulating his price but it does not compel him to ship. Let him hold what he has; there will be need for his brick. Here are a few projects that will go ahead before July:

| | Value | Est. Amt. of brick required. |
|---|---|---|
| Woolworth building, 60 stories | $ 8,000,000 | 12,500,000 |
| Vanderbilt av. (New York Central) Sta. | 10,000,000 | 17,000,000 |
| McAlpine Hotel | 5,000,000 | 14,000,000 |
| Wingdale prison | 2,000,000 | 45,000,000 |
| Masonic Temple | 1,000,000 | 5,000,000 |
| Subway construction (24 miles) | 160,000,000 | 114,000,000 |
| Postoffice | 2,550,000 | 14,000,000 |
| East River Savings Bank | 1,000,000 | 1,500,000 |

There are 76 buildings, each costing over $1,000,000 which will go ahead this spring but those given above alone take care of approximately 200,000,000 common brick. Most of these contracts are only being figured now. It will therefore be seen that there is room for marketing every brick up the river as figures given above do not include speculative suburban construction work nor ordinary loft building operations.

The market is in the hands of the Haverstraw shippers although three barge loads came in from Newburgh during the January 7th thaw. The record for the first half of the month showed no shipments from Kingston or Roundout.

William K. Hammond, president of the Hudson River Brick Manufacturers Association gave "Brick and Clay Record's" correspondent the following interview:

In response to a question as to what he thought of the outlook Mr. Hammond replied by saying that John D. Rockefeller gives as the secret of his success the fact that he always saw to it that the supply was kept just a little behind the demand.

"You cannot afford to fool yourself very long. We have been selling our brick below cost for a whole year or more. Some of us have thought things would improve. They will not until we get down to fundamental principles again. Our troubles are not parliamentary. They are economic. We must first cure our economic condition, then legislate among ourselves to keep ourselves cured.

"I do not tend to the opinion others have, that the day of higher prices have gone forever, but I do not hope to ever see $10 brick again. We have since learned that when the market gets in that condition, the after effects are unhealthy.

"We are setting our standards too high. If one year's business falls behind the preceding year's totals, then we begin to cry financial unrest. What was the matter with last year? Nothing serious. We made over our balance sheets for 1909; then we added a percentage of what we thought was normal increase for 1910 and started in to hustle. Now it is the nature of things to have our best calculations upset once in a while. That is what happened in 1910. Because we did not excel 1909's business we complained.

"But a change has got to come about. We have got to return as a nation to basic principles. The time is ripe for a revision of our business codes. We brick makers have got to keep up to the times. We cannot continue to make brick at a loss. Being desirous of getting profit out of our product and at the same time keep up with the times, we find ourselves handicapped by law and other conditions.

"In the first place, the law gives labor the privilege of saying how much he shall sell his labor for. He fixes a price for the labor he markets. But let the manufacturer attempt to do the same thing with what he has to sell, namely, his product, and he is held to be violating the Sherman anti-trust law and he faces the alternative of being locked up. That is what the trouble is with the Eastern brick maker today. He is hampered.

"I do not mean for an instant to say that labor should not have its 71 cents an hour for laying brick. Our workingman of today is a much better type than he was in 1863 when I started in to make brick. His hours are better and his better wages enable him to develop himself and educate his children. But labor should give a more generous return for the money received.

"Do you know that the man who picks up a brick from his tray, puts some mortar on it and sets it in place in the wall actually gets more for his work than we brick manufacturers get for the whole operation of manufacturing the brick and getting it to New York City.

"We can cure this situation by manufacturing less brick. What brick we do make, let us dispose of intelligently rather than panically. The brick manufacturers need to get together closer than they have ever been, and the time to do it is right now."

### Eastern District Brick Notes.

There was a large increase in the construction of brick dwellings in the Bronx last year. The total number exceeded 500 as compared with 300 in the year previous.

The Interstate Mantel and Tile Dealers Association's convention will be held in the Hotel Astor, on February 14, 15 and 16th. The sessions on Tuesday and Thursday will be exclusively for the delegates who will be here from all parts of the country. On Wednesday the manufacturers and delegates will meet together. The association will have its annual entertainment on Thursday night, February, 16. About 450 delegates are expected to be here. A feature of the convention will be a visit to the Hippodrome on Wednesday night, February, 15. This entertainment will be provided by the association. The officers of the Association are: Joseph W. Lantry, president; George F. Eubanks, first vice-president, Atlanta, Ga.; Robert Meck, second vice-president, Chicago, Ill.; and T. J. Foy, treasurer, Cincinnati, O.

The Duffney Brick Co., of Troy, has added machinery for the manufacture of paving brick. William Duffney says the works turned out 13,000,000 brick last year.

The Retail Dealers of New York are again seeking to make the basis of quotation for common brick the retail price instead of the wholesale price. The matter, however, has not yet taken formal shape. Wholesale prices are now quoted upon which architects and others make their calculations, always allowing margins for dealers' profits and cartage. The present wholesale quotations made of common brick are also used as the basis of paying labor on the brick yards up the river. If the price advances here and stays up, the employers are sure to learn about it in the shape of demands for higher wages. For that reason there is little likelihood that the change will be made.

The Stuyvesant Brick Co., Mechanicsville, N. Y., at its annual meeting elected these directors: C. R. Sheffer, L. E. Sheffer, F. H. Ferris, C. A. Howland, L. A. Cook and R. W. Smith. The directors elected the following: C. R. Sheffer, president and treasurer; Charles A. Howland, vice-president; Leonard E. Sheffer, secretary.

At the annual meeting of the Rensselaer (N. Y.) Brick Co. the following directors were elected: The Rev. R. H. Rollins, C. J. Smith, A. H. Ostrander, William Welfinger, John Welfinger, Harry E. Smith, Ray B. Evory, James Henderson and Homer Brayton. The directors elected: The Rev. R. H. Rollins, president; C. J. Smith, vice-president, and James Henderson, secretary and treasurer.

The George W. Washburn Brick Co., Kingston, N. Y., has elected the following officers: George W. Washburn, president; William H. Barnes, vice-president; George W. Washburn, Jr., secretary and treasurer; George W. Washburn, William H. Barnes and George W. Washburn, Jr., directors.

The stockholders of the Cary Brick Co., Mechanicsville, N. Y., elected directors for the ensuing year as follows: William L. Howland, William N. Cary, E. L. Gailor, W. R. Palmer, E. D. Palmer, C. H. Abbott, Ruth Cary, Edward H. Strang, Jerry Cleveland, Stephen Lee and R. H. Rogers. The directors elected officers as follows: William N. Cary, president and general manager; W. R. Palmer, vice-president, and William L. Howland, secretary and treasurer.

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### THE GREAT NORTHWEST.

St. Paul, Minn., Jan. 18.—The sand lime brick are still quite a factor in our market. There are six plants in successful operation in shipping distance.

The Minneapolis Brick and Tile Co., have completed repairs on their plant that was burned last August, have made it thoroughly fireproof and the most up to date and best equipped plant in the Northwest. They were the pioneers in working out the problem of drying tile in a rack pipe dryer, and conveying them from the machine to the kiln on gravity rolls and cable conveyor. They have a Youngren Kiln and N. Y. Blower Co. fan, and a No. 24 Brewer machine.

Albert Lea, Minn., has another new concern, the Acorn Brick & Tile Co., which has just been incorporated with a capital of $500,000. The main offices of the company will be located in Albert Lea, and the plant will be located adjoining the village of Glenville.

The officers of the new company are as follows: President, Beecher H. Ward, Fairmont; vice-president, H. E. Skinner, Albert Lea; secretary, Alfred Christopherson, Albert Lea; treasurer, C. E. Paulson, Albert Lea. The work of constructing the plant will be begun in the spring. The company have 54 acres of land adjacent to the Rock Island, Illinois Central and Iowa Central railways.

Minnesota parties are understood to be back of the "New Ulm Brick and Tile Company," incorporated at Augusta, Me., under the Maine corporation laws. The company proposes to do a manufacturing business, and is authorized to issue $200,000 of common stock and the same amount of preferred stock.

The initial stockholders, who also constitute the first board of directors, are: W. H. Gleason, Jr., and R. L. Johnson of Austin, Minn.; E. J. Bauman of St. Paul, Minn.; R. S. Buzzell, president; M. M. Farrar, treasurer; Charles L. Andrews, clerk, of Augusta, Me., and F. L. Goodspeed, of Randolph, Me. Under the Maine statutes the clerk must reside in that state, and have an office where the stockholders' meetings shall be held.

The Northwestern Clay Association will hold its annual meeting March 15-16 in Minneapolis. Ira C. Jones, chairman of the program committee, is arranging the addresses and other events of the meeting.

The plant of National Brick & Clay Co., Linton Road, Portland, Ore., has been practically rebuilt. 24 kilns of the Boss system and a 12-tunnel waste heat dryer have been added and when the improvements have been completed it will be an up to date plant ready for spring business. Steam power is used but the company is contemplating the installation of electric power.

W. O. Cook, proprietor of the brick yard at Eugene, Oreg., recently installed a new boiler at his plant. He anticipates a splendid business in his line this year and thinks one of the railroads will build past his yard so that he can get his product to town easier.

A. H. Horn, of the Bend, Ore., Brick & Tile Co., recently received from Ohio a number of pressed brick made from the clay taken near the brick yards west of Bend. Mr. Horn sent a sample of the clay to the Bucyrus Clay Working Machinery company, of Bucyrus, Ohio, to be experimented upon by them.

The company reported that the clay contained peculiar qualities which would give the brick made from it a large demand. The clay makes a dark red brick and with the proper burning may be made almost black.

R. H. Ahrens and W. A. Robb, prominent business men of Basin, Wyo., have gone to Denver, Colo., where they are interested in the new brick plant at that place. The plant makes a dry pressed brick and has a capacity of 20,000 a day.

R. H. West, who has been bookkeeper for the Missouri Slope Brick & Tile Co., Dickenson, N. D., went to Charleston, W. Va., where he will act as manager of a new brick enterprise.

The Red River Valley Brick corporation, Grand Forks, N. D., have elected the following officers:

President, A. I. Hunter; vice-president, J. R. Poupore; treasurer, Jas. A. Dinnie; general manager and secretary, Louis Campbell; board of directors, A. I. Hunter, J. R. Poupore, M. J. Moran, Jas. A. Dinnie and J. P. Kennedy. Balances drawn for the past year show the business has been well and profitably conducted.

At the annual stockholders' meeting of the Hillsboro, (N. D.) Brick & Tile Co., the following directors were chosen: M. J. Nelson, Oluf A. Sorum, Ole Aastad, Albert Sorum, M. S. Anderson, Ole Arnegard and M. O. Kaldor.

The board of directors met the same day and elected officers as follows: M. J. Nelson, president; M. S. Anderson, vice-president, and Ole Arnegard, secretary and treasurer.

## THE CHICAGO SITUATION.

Chicago, Jan. 23.—During the past few weeks there has been a revival in the demand for brick and clay products, making a hopeful prospect for the manufacturers. January is conceded to be a dull month, but this year it has given so much evidence of activity that there is reason to feel that the present year will be a most notable one. Reports from all sections are that the plants are still operating on full time and that advance orders are putting in their appearance. This is more than gratifying and is sufficient to make the manufacturers feel sanguine as to the future.

If we are to judge the coming activity by the prospects for building alone in Chicago, there will be cause for rejoicing. Reports are being made every day of some new structure of more than ordinary size to be erected here. Manufacturing plants are making preparations to do considerable in this respect.

The proposed new building law, which may go into effect in September, limiting the height of buildings to 200 ft., has caused more than ordinary activity in this respect, but whatever has been the cause, the prospects have never been more flattering. There are now more skyscrapers under way and contemplated than ever at this season. This, coming as early as it has, naturally has buoyed up the hopes of the clay products people, for it means a vast amount of burned clay for building purposes.

A partial list of the large building projects in Chicago on which work is to be commenced this year—on the majority of which contracts are not let—shows the following:

| | |
|---|---|
| Rothschild building, Van Buren street | $1,500,000 |
| Monroe building, Monroe street | 1,000,000 |
| Otis Estate, 21-story, Madison and La Salle | 3,000,000 |
| Cook County Hospital | 3,000,000 |
| Hamilton Club, Dearborn street | 600,000 |
| Insurance building, 21-story, Fifth and Jackson boulevard | 5,000,000 |
| McCormick annex, Michigan avenue | 1,500,000 |
| Heyworth building, 20-story, Clark street | 2,500,000 |
| Schoenhofer building, 21-story, Monroe street | 3,000,000 |
| Eitel building, 20-story, Randolph and La Salle | 2,000,000 |
| Heisen building, 22-story, Dearborn and Harrison | 2,500,000 |
| Mandel Brothers annex, 16-story | 1,800,000 |

For the first 11 months of 1910, according to the records of the building department, there were issued 10,882 permits, the total value of which was $84,644,000 with a frontage of 311,097 feet, while the figures for a similar period of the previous year were 10,771 permits at a valuation of $83,734,880 and a frontage of 295,826.

Among the buildings now under construction for which permits were issued during the past year may be mentioned the following:

| | |
|---|---|
| Mandel Brothers' annex, 16-story | $1,800,000 |
| Karpen building, Michigan avenue | 1,500,000 |
| Harris Trust Company, Monroe street | 1,500,000 |
| Boston store addition, State street | 1,000,000 |
| Kesner building, Wabash avenue | 850,000 |
| Commonwealth Edison Power Station | 750,000 |
| McCormick Estate, 189 Michigan avenue | 750,000 |
| Office building, 368 Dearborn street | 750,000 |
| Library, University of Chicago | 650,000 |
| Wenalden warehouse | 500,000 |
| Hartman Furniture Company, warehouse | 300,000 |
| Wells-Fargo building, Fifth avenue | 300,000 |
| Baseball park | 300,000 |
| Sears-Roebuck addition | 300,000 |
| Old People's Home | 300,000 |
| Sprague apartment building | 300,000 |
| Ishman Estate, State street | 250,000 |
| West Van Buren street, warehouse | 250,000 |
| City pumping station | 230,000 |
| Pullman power house | 220,000 |
| Shepard warehouse | 200,000 |
| People's Gas Light & Coke Co. | 200,000 |
| C. M. St. Paul Ry., power house | 200,000 |

The recent convention gave stronger evidence than ever of the assertion that Chicago was a lover and a user of burned clay. There has been a tendency of late to increase the use of these products, wherever possible. With such prospects in view then there is every reason for the hopeful feeling in the hearts of the clay people here and in the surrounding vicinity.

The manufacturers and dealers here and in this section have gratifying reports to make of the present and future, and feel that there will be a noted increase over the last year, which was a good one to say the least. Within another month they expect to be well under way with a large amount of business in view.

The Wm. E. Dee Clay Co., find that there has been no particular change in the situation with them in the past few weeks. They continue to operate their plants as usual, and have as much demand as they can take care of, and the prospects favor a continued good call for the future. If there is anything that has an unfavorable aspect, it is the question of prices. It is a well known fact that the prices on sewer pipe have been gradually lowering, and it would appear now as if the limit in this respect has been reached. At any rate it is hoped that a turn for the better will soon come. The demand for sewer pipe has been good, and there is no complaint in this respect

The Thomas Moulding Co., has found the month of January to be the best in many years, which is a pleasant surprise as they always consider the month of January a very dull one. They feel that there will naturally be a more notable increase from this time forward, and they are most hopeful of the spring season. Face brick, always a favorite are becoming more so, and the face brick men are doing much to educate the people to the advantage of making their structures artistic. The Thomas Moulding Co., have been doing their share of this work, and have found it most profitable.

The Acme Brick Company has been organized and incorporated here with a capital stock of $10,000. The stockholders are: Joseph E. Hyman, H. L. Engled, J. W. Atkinson. The company will deal in brick, clay products, stone and cement.

Mr. Cormack, of the Wisconsin Lime and Cement Co., is pleased with what he considers a promising outlook for the coming months for face brick. The indications certainly favor a bright year, and this company is sanguine as to the general aspect of the trade. They have quite recently added some new lines to the large number of clay products they carry in stock.

The Bonner & Marshall Co. report the situation for face brick and roofing tile to be flattering. The orders are coming in now for large quantities and the situation is brightening each day. They feel that the present year will be one of more than ordinary profit. Mr. Sylvester Marshall is still confined to his home on account of illness.

The Clay Product Co., find the present demand for conduit to be good. They say that they are operating their plant at Brazil, Ind., full and anticipate a very active demand during the present year. The situation thus far has warranted their belief in the continuation of activity.

The McRoy Clay Co., continue to keep their plant busy. They report the present demand for conduit is good, and the situation is quite pleasing to them from every side.

## KANSAS CITY.

Kansas City, Jan. 21.—Building operations just at the present time are not very brisk as the city is covered with a thick coat of sleet, and it is almost impossible to get anything delivered to the job. When the streets are in passable condition, however, the brick people are making delivery every day, and are placing a considerable quantity of brick. There seems to be fully the average amount of winter building, and some brick is being purchased, and delivery asked for, where the building will not be begun until spring. The builders want to be sure to have the material ready to work with, so no delays will be caused waiting for material. Some contractors think this is a wise precaution, as they feel there will be a building rush early in the spring, making delivery slow, as brick men will try to take care of all their contractors at the same time.

If the figures published in a local paper are worth anything, it is evident there is going to be no lack of money in this city the coming year, for it estimates that $27,000,000 will be spent here on various construction work of large size, not figuring the small work, and with that much large work it should mean enough small work to consume a great many brick in the course of the year.

The lack of water down in Kansas and Oklahoma is still the dominant feature in the brick making situation. Plants which would have remained in operation right along, having gas of their own, have been compelled to shut down on account of lack of water, while some who have plenty of water have been compelled to shut down on account of lack of gas, and others have fixed their furnaces so they could burn coal and are still operating right along. The net result is a much smaller production of brick this winter than was expected, and as the demand in the South has continued good right along, the plants now in operation are reporting their product well sold ahead, so they will probably reach the rush season of spring without any surplus on hand.

Plants which are closed down have generally been put in good repair and everything made ready for an early start in the spring, as it is expected that there will be plenty of water by that time. The weather comes in bunches in this section, a dry bunch, and then so much water that the people wish it would always be dry. Then it will change and be so dry that the people would be willing to see rain all the time. The time must be fast approaching for one of these mud periods, for the dry one has lasted much longer than usual. With a wet spring there should be no trouble about getting out plenty of brick so delivery can be made by the time building operations are in full swing, so it is hardly expected in this market that there will be much of an advance on common brick in the spring, though it will be entirely a matter of supply and demand, and it is still possible that the demand will be greater than the supply.

Not many pavers are being used in Kansas City, but the demand from surrounding cities is greater than it has ever been before, and plants turning out a brick that will do for paving purposes are still sold away ahead, and seem to be able to take on new contracts at their pleasure. At the present time the paving brick is the big money-maker in the business, and as there seems to be no limit to the demand it would seem to be a matter of wisdom for plants to arrange to produce some pavers, if their shale will produce a brick with a fair degree of toughness after it is vitrified. It is the common brick which often becomes a drug on the market. Face brick have a regular sale, and while the prices are generally held at a point to make a profit, the demand is not so heavy as for the paving brick, which are needed all the time and in big quantities.

The Fort Scott Brick & Tile Co. has been incorporated in Fort Scott, Kas., with a capital stock of $200,000, with the following officers: W. K. Calhoun, president; Rice Gunn, vice-president; W. C. Gunn, treasurer; W. J. Smith, secretary. This company succeeds to the business of the Fort Scott Brick Co., which was recently closed out through the bankruptcy court. The old plant has been put in partial operation for the balance of the winter, and will be opened full blast in the spring. It is also proposed to put in tile machinery at some time in the future, as a good deal of tile drainage is projected in the neighborhood of Fort Scott in the near future.

The Lumbermen's Cement & Brick Co. has been incorporated in Carlyle, Kas., with a capital stock of $1,250,000, and will succeed to the business of the Lumbermen's Portland Cement Co. at that point. The latter company recently went into the hands of a receiver, before its cement plant was completed, but its fine brick plant had been in operation for several months, so the new company will have the brick plant ready to begin producing at once. The incorporators are holders of stock in the old company, this being merely a reorganization.

The Altoona Vitrified Brick Co. has again opened for business, after a course of repairs, adding new kilns, etc., and is making brick earlier in the year than was expected when it shut down last fall.

In Kansas City the only plant to continue in operation steadily is the Diamond plant of the Kansas City Hydraulic Pressed Brick Co. Other plants have made short runs, but this is the only plant which has changed its equipment to use coal for the winter, and the others are subject to the changes in the gas supply.

The Enid Vitrified Brick Co., of Enid, Okla., is now operating its plant at full capacity, under the management of George Rarey.

Gog & Griffin, of Girard, Okla., will establish a brick plant with a daily capacity of 60,000 in Clarendon, Okla.

The Dalton Brick & Tile Mfg. Co., of Poplar Bluff, Mo., has increased its capital stock to $25,000, from $10,000, and will make improvements to the plant.

The Brown Brick & Tile Co., of Garrison, Tex., is about to expend $25,000 on improvements.

Frank Bowman, Frank Wagoner and others are about to organize a brick company in Hugo, Okla.

R. T. Taliaferro and others are organizing a company to establish a brick plant in El Dorado, Kas.

Work is soon to begin on the fire brick plant of the Mississippi Glass Co., in Vandalia, Mo.

The Howard Brick Co., of Claremore, Okla., is reported to have been forced to shut down, from lack of water.

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## ST. LOUIS A BUILDING MATERIAL CENTER.

St. Louis, Mo., Jan. 25.—The somewhat surprising though altogether gratifying fact is revealed by statistics furnished by the large general contracting companies in St. Louis, that approximately one-third of the materials used in the construction of buildings erected by them in other cities are the products of St Louis manufactories.

St. Louis produces annually upwards of $50,000,000 worth of building material in its widely varying branches. Of course a large portion of this is used in St. Louis. But a conservative estimate indicates that at least one-fourth of this vast total is made up of values entering into the construction of buildings in other cities. That it is used is due to one of two reasons. It is either better than the material with which it is brought into direct competition, or it is cheaper. Perhaps it is both. The point need not be argued here.

A $700,000 bank and office building fifteen stories high, recently erected in Omaha, Neb., by the James Black Masonry & Contracting Co., of St. Louis, contains $300,000 worth of manufactured building material shipped from St. Louis. The same company, in a ten-story hotel erected in Salt Lake City, the contract price of which was $125,000, used $50,000 worth of St. Louis made materials. In a twelve-story office building and church erected in Kansas City, $100,000 worth of St. Louis products were used by the same company. This same concern, in extensive contracts completed in Seattle, Wash., used $300,000 worth of St. Louis products in a $700,000 office and bank building, $500,000 worth in a fourteen-story hotel costing $1,000,000 and $300,000 worth in a $500,000 office and bank building. These are items which stand out prominently. Smaller undertakings completed in the South and Southwest, made a market for about the same percentage of St. Louis goods.

Down in San Antonio, Tex., the Selden Brick Construction Co. of St. Louis recently erected a hotel building for the St. Anthony Improvement Co. The contract price was $78,500. The company shipped and used $28,000 worth of St. Louis building materials in the job. At St. Joseph, Mo., the company built the mercantile house of the Tootle-Campbell Dry Goods Co. at a cost of $165,000, using $105,000 worth of St. Louis products. The Buchanan Hotel, erected by the company in St. Joseph at a contract cost of $390,000, contains $130,000 worth of St. Louis factory products.

It is worth something to St. Louis to foster and increase this already rapidly expanding commerce. It means more dollars, more skilled workingmen, more homes, more prosperity. Those are the things we are all seeking to accumulate. They mean prosperity. That sounds good.

On South King's Highway, St. Louis, Mo,. is the flourishing plant of the Progress Press Brick Co. The property comprises a tract of fifty acres, on which are the three yards. At yard No. 1 are to be found a brick and frame boiler and engine house, press rooms, clay sheds and seven kilns of three hundred thousand capacity each. There are four down-draft kilns at yard No. 2 and three up-draft kilns at yard No. 3.

The surface clay is procured near the works, and the fire clay is mined at a depth of about 90 ft. The clay is loaded by mechanical loaders into dump wagons and hauled to the plant. No fixed time is required for the weathering. The clay is stored in four large sheds. It is loaded in a squirrel cage press or disintegrator, of which there are three. The screens are simply inclined stationary ones. The dryer press method is used in manufacturing quality building brick, high grade face brick with red glaze, hollow and flash effect, salt glaze brick and ornamental shapes. Belt and bucket elevators are used for conveying. The goods are set 40 high in the upper-draft kilns and 34 high in the down-draft kilns. Wood is used for water-smoking and Illinois soft coal for burning.

The power plant comprises one 200 H.P. St. Louis Corliss engine. Three St. Louis Slide Valve Engines and one Atlas 100 H.P. engine. There are two St. Louis Rohan boilers, one St. Louis Garstang 100 H.P. boiler and two Wanglor 200 H.P. boilers.

The working season averages ten and one-half months. The plant was built in 1890 with 20,000 capacity, enlarged in 1894 and since then continually increased until it has a present capacity of 155 thousand every ten hours. The officers of the company are: Jacob Stocke, Sr., President: Jacob Stocke, Jr., Vice-President; H. C. Buckman, Secretary-Treasurer.

The Waverly Brick & Coal Company has been incorporated at Lexington, Mo., with a capital stock of $300,000, fully paid up. It intends within the next ninety days to have an output of 200,000 brick per day.

The incorporators of the company are well known Kansas City men—William Huttig, J. H. Berkshire, C. C. Christie, W. A. Hammond, E. A. Rider, J. H. Harkless and Clifford Histed.

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## DETROIT NEWS.

Detroit, Mich., Jan. 22.—A really better than anticipated demand for brick is being experienced by Detroit and Michigan producers. January, usually, is a poor month for general business, but locally, plants are running strong and in all likelihood they will continue so through the remaining months of the year. Without an exception, manufacturers interviewed by "Brick and Clay Record's" correspondent expressed confidence in the market and gave it as their opinions that 1911 would probably be a record year. Building operations will likely start earlier this spring than usual, because of the immense amount of work to be done. Already many contractors have signified a desire to get into the field, and at the first interruption of cold weather preliminary work will probably be started. The many manufacturers in this district say the demand for common brick will be very strong during the summer. A number of motor car companies are preparing to erect additions to their plants, and they are using large quantities of this material for inside facing and work. There are no labor difficulties in the city or surrounding territory and with the probability that there will not be any, another obstacle in the path of progress is removed.

"The outlook for 1911 is that building operations in and about Detroit will be carried on very extensively," said the Church Brick Co., "We are already operating our plant capacity, and we anticipate the demand will continue in its present volume for some time to come. There is no difficulty in getting raw materials, and we have already entered into a number of contracts for our product."

"Our plant is operating steady, and we expect it will continue to do so for some months to come," said Clippert & Spaulding, brick manufacturers of Lansing. "There has been an extremely good demand for what we call common brick during the past few months, and 1911 is holding out an attractive prospect. Cities in this district are growing rapidly and we are supplying much of the brick in the new construction work."

"Brick is selling good, in fact, exceptionally so," said the George H. Clippert & Bros., Brick Co., "Our plant in Springwells is running steadily and we anticipate a heavy building season in Detroit in 1911.

"We are not anticipating opening any new beds of clay during the coming year. In fact, our present beds are not nearly worked. That is the first thought of a brick manufacturer to have good beds of clay. Our's are sufficient to meet our demand for some time to come."

Burke Bros., report an excellent demand. The company reports the prospects for summer business as being especially encouraging. The plant is now running full capacity and will probably continue doing so for some time to come.

William Clippert is completing arrangements for opening a new brick yard in Detroit. Thomas Shields, a Detroit architect has completed plans and specifications for the plant. It will have a capacity of 64,000 brick per day, and will work two machines. It is expected to have it running in 30 or 60 days.

H. G. Field, of the Church Brick Co., is wintering in California.

William Clippert, of Detroit, was ill several days during the past month.

The American Building Club, of Detroit, has filed articles of incorporation. Capital, $1,000.

The Reliance Contracting Co., of Detroit, has incorporated with a capital of $1,000.

The Holton Brick Co., whose yards are located in Holton, Mich., is planning to double its capacity the coming year. The company reports selling more than 350,000 brick at retail in Muskegon during the past year, an increase of 16 2-3 per cent over the demand in 1909. The company now has more than 80 acres of clear clay land and is situated on the Pere Marquette railroad. The company in 1910 manufactured more than 3,000,000 brick.

George C. Schroder, of Grand Rapids, was in Detroit a few days ago investigating the workings of the Detroit Builders & Traders exchange. The Detroit exchange has about 300 members, and the membership has grown more than 100 during the past year. It is planned to start a similar organization in Grand Rapids.

After a very successful year, the Saginaw Paving Brick Co., has closed operations for the season. The company reports the prospects for 1911 business as being excellent. It sold more than 6,000,000 bricks last year. Officers were re-elected as follows: President, and manager, John H. Qualmann; vice-president, George W. Weadock; secretary-treasurer, James M. Sleeth.

## OHIO NEWS.

Columbus, O., Jan., 25.—With an active building season in the city of Columbus in 1910 the brick business prospered exceedingly. But the activity of the building season did not close with 1910 but the first three weeks of 1911 showed a continuation of the prosperous conditions. The records of the city building inspectors department shows that permits issued both in number and valuation are far ahead of the corresponding period in 1910.

The Reinforced Tile Roofing Company, of Youngstown, O., has been incorporated with an authorized capital of $50,000 to manufacture and sell all kinds of clay products, making a specialty of tile roofing. The incorporators are John P. Young, Albert A. Lane, Henry M. Caldwell, Harry K. Filler and Heber Mackin.

The Richwood Clay Company, of Richwood, O., has been incorporated with a capital of $100,000 to make all kinds of clay products by J. A. Shipley, C. McAllister, J. B. McAllister, M. L. McAllister and John A. Shipley.

The Swan Creek Lumber and Supply Company of Toledo, O., has been incorporated to deal in brick and other builders supplies by E. J. Marshall, W. G. Nichols and others.

At the annual meeting of the McArthur Brick Company, of McArthur, O., the following officers were elected; H. S. Hamilton, president; D. McKeever, vice-president; O. F. Pilcher, secretary; A. Will, treasurer; L. W. Sprague, general manager. These officers with I. M. Lantz, William Fisher, O. E. Vollenweider, and A. Will, Jr., were elected directors. A 4 per cent dividend was declared.

Charles Wilson, formerly secretary of the Columbus Builders' and Traders' Exchange has been made a salesman for the Iron Clay Brick Co., with offices in the Ruggery Bldg., Columbus.

The Moxahala Brick company of Columbus, O., has been incorporated with a capital of $200,000 to manufacture brick at Moxahala in the Hocking Valley. The incorporators are F. H. Muchler, F. Hickle of Columbus and H. W. Davis of Wilmington Delaware.

The announcement is made that the Toronto Fire Clay Company of Toronto, Ohio, will increase its output of face brick to 100,000 per day. This means that an additional selling force will be organized in the near future. F. P. Cuthbert of Philadelphia, well known in brick circles, has been named to take charge of the new Pittsburg office of the company, located at 1520 Oliver Bldg. One of the factories of the company known as the Little Giant has been in continuous operation for sixteen years which is considered a record for a brick plant.

Work is progressing rapidly on the plant of the Diamond Clay Co., just east of Haydenville and near the Hocking-Athens county line. Three kilns have been erected and the boiler and engines have been installed. Trackmen of the H. V. Railroad Company are installing the switches at the present time. These will soon be completed. This plant will be ready to ship brick with the advent of good weather the coming spring. The plant of the Diamond Clay Co. is advantageously situated for economic production; clay and coal in close proximity to the plant will enable a cheap manufacture of brick and other products to be made. This company is the youngest of the numerous clay working plants in the Hocking Valley district, and gives employment to about 50 men.

With the successful reorganization of the C. & H. C. & I. Company the big million dollar brick plant located at Kachelmacher in this county will be put into operation.

LeRoy W. Gaddis, Charles F. Harrison, M. R. Thornton, H. Miller and Barton Griffith have incorporated the Gaddis-Harrison Brick Company of Columbus with a capital stock of $25,000. The company will manufacture and sell brick. Mr. Gaddis is well known in local building circles, as he has had a selling agency for several well-known brick plants for some time, his office being located in the Brunson Building.

The annual meeting of the Iron Clay Brick Co., was held early in January at the office of the company, Fifth floor, Ruggery Bldg. No change was made in the officers who have proven themselves equal to the task of looking after the affairs of the big brick manufacturing corporation. W. D. Brickell is president and treasurer and J. M. Adams, secretary and general manager. The plant of the company which is one of the largest face brick factories in the state is located at Shawnee.

The Brickbuilders Supply Co., is the name of a partnership formed by W. D. Brickell and J. M. Adams for the distribution of all kinds of brick. The offices of the company are on the fifth floor of the Ruggery Bldg., Columbus Ohio, with J. M. Adams manager. The company has built a warehouse on the St. Clair avenue viaduct where all kinds of brick are kept in stock for the use of contractors and builders to be delivered on short notice. The line of materials carried includes pressed brick, wire cut inpervious brick, enameled brick, common brick, fire brick, fire clay, flue lining, wall coping, mortar colors, wall tiles, lime, sand and water proofing compounds. It is the first company in Central Ohio which has erected and operated a warehouse of that character.

The annual meeting of the Ohio Face Brick Association will be held at Louisville, Ky., February 8, in conjunction with the national brick manufacturers' meetings in that city. A number of interesting matters will come before the meeting.

Arguments in the complaint filed by the Ohio Face Brick Manufacturers' association against the express companies, challenging rates on sample brick shipments will be heard at Washington, D. C., before the Interstate Commerce Commission February 17. Testimony in the complaint was taken at Cleveland recently.

The outlook is good for an active brick business during the coming year according to the officials of the leading brick manufacturing concerns of Ohio. It is expected that the volume of business will be equal if not in excess of that of the year 1910.

Brick manufacturers in Columbus and Central Ohio have originated an advertising campaign to still further increase the use of brick in the erection of buildings. So far the campaign has proven quite a success. As an example of the success of the campaign waged for the building of brick houses, it is stated that on the better streets of the Buckeye capital there is but one frame house to 18 brick residences built. In fact on many of the better streets of Columbus it is a rarity to see a frame dwelling.

## THE MIDDLE STATES.

Des Moines, Ia., Jan. 15.—The salesmen of the Plymouth Gypsum Co. and the Plymouth Clay Products Co. met at Ft. Dodge, Ia., the first week in January to attend the annual school of instructions from the sales managers. Mr. D. M. Roberts of the Gypsum company and Mr. G. M. Eilenberger of the Clay Products company. These gatherings are of much interest to the men selling the goods, and to the heads of the departments of manufacture in learning the demands of the trade, and also to exchange ideas and have a social time. The companies have expended large sums of money in improvements and new developments to increase the output for 1911, opened up additional mines, built an aerial railway of one and one-half miles to transport the raw material from the mines to the plants, and built terminals at each end of the line, at the gypsum mill for crushed rock, storing fifteen thousand tons, and at the clay plant ten thousand tons. The officers of both companies entertained the salesmen, office force and superintendents at a banquet at the new Wahkonsa hotel.

The stockholders of the Grundy Center (Ia.) Brick & Tile

Co. have elected the following officers for the next year: J. J. Kies, president; E. A. Crary, secretary-treasurer and business manager.

The loss at the Alton, Ill., brick plant by the recent fire was about $16,000. Some insurance was carried, which will cover about 25 per cent of the loss. The plant is in operation again, but is laboring under some difficulties. The plant is behind with its orders and has several other large orders in prospect, so the loss is felt keenly. The plant employs about 150 men and this number will be augmented rather than reduced by the fire as it will be necessary to employ a large number in construction work, which will take about four months.

The Illinois Shale Tile Co. (capital, $75,000.00) is erecting at Coal City, Ill., a large factory for the manufacture of drain tile, shale face brick, large size tile and hollow blocks. Haeger Brothers, of Dundee, are the proprietors of the new concern, which will have an up-to-date plant with all the most modern machinery and capable of turning out six or seven cars daily. Coal City has three railways—E. J. & E., C. & A., and Santa Fe. From 40 to 50 men will be employed steadily the year around. There is a constantly increasing demand for the articles to be made and the new company will have little difficulty in disposing of their output. Elgin contractors are now at work erecting the buildings and the company expects to begin operations quite early this spring.

The annual election of officers of the American Brick & Tile Co., Mason City, Ia., was held and the officers for the ensuing year are: Dr. I. I. Nichol, president; W. H. Dilts, secretary; Denny Vroom, treasurer, and Charles Smith, manager.

It is reported that a group of capitalists has purchased a block of stock in the $1,000,000 Purington plant at Galesburg, which, with other stock, puts control of the company with Davenport stockholders.

The Richards Brick Co., which has long been operating one of the leading industries of Edwardsville, Ill., is now putting in a number of improvements which will almost double the output of the plant. They have just built a clay storage shed with a capacity of over 5,000,000 brick. The clay is secured by means of a double track gravity system, the cars being filled at the top of the hill the force of gravity pulls the loaded car down to the shed, and at the same time pulls the empty car up to be filled. From the shed the clay is hauled to the plant by means of a narrow gauge electric railway similar to the regular electric railway only it is a little smaller, having a 36-inch track. The company also expects to install a new brick press and to put in a new kiln equipment, which has a capacity of four or five times the amount of brick put in the kilns at the present time. The whole system of handling the brick will be changed and only the most modern methods will be used.

It is said that a company at Attica, Ind., is about to complete details for the establishment of clay works to convert its fine deposits of clay into tile and pottery wares.

G. W. Kennedy has sold his stock in the Manitowoc Clay Products Co., Manitowoc, Wis., and has resigned as general manager and treasurer of the company. Mr. Kennedy will devote his attention to his contracting and house-moving business.

The Illinois Clay Products Co. is the title under which a company has been incorporated at Chicago for manufacturing and dealing in clay products. The company is capitalized at $5,000, and the incorporators are I. K. Davidson, Harold E. Durham and B. H. Bernstein.

The stockholders of the Grande Brick Co., Grand Rapids, Mich., have re-elected their old board of directors and the old officers for the ensuing year. The officers are: John A. Jackson, of Saginaw, president; Charles W. Garfield, vice-president, and Henry Joseph, secretary and manager. The annual report showed an increased output and prospects of better business for the year to come.

The case of William Lewis against the Detroit (Mich.) Vitrified Brick Co. was heard in the supreme court last week. Lewis, who was employed as a shale miner at the plant, was caught in a cave-in and badly injured. He was given a judgment for $5,000 in the circuit court.

The Pioneer Brick & Tile Co., Earlville, Ill., finished their last kiln for the year last week, having burned over fifty kilns during the season.

The Midland Terra Cotta Co., Chicago, has increased its capital stock from $30,000 to $150,000.

The Illinois Brick Co., Chicago, which has found the Penfield device an economical device for setting brick in the kiln, has now under construction a mechanical loading device for transferring brick from the kiln to cars. With the new device, now in operation at five of the company's yards, the saving in broken brick and prevention of chipping of corners and edges has been large.

The Fond du Lac (Wis.) Pressed Brick Co. will begin work in the spring making wire cut brick. A machine has been installed in the company's plant for that purpose. It will produce 40,000 brick a day, and the company has set the mark for its season's output at 5,000,000 brick. The company will also manufacture pressed face brick as heretofore. At the annual meeing of the company officers were elected as follows: Robert Zinke, president; A. J. McCreery, vice-president; E. H. Korrer, secretary; M. T. Simmons, treasurer; A. G. Bechaud, George Bolan, Dr. Serwe, C. F. Geisse and Al Hutter, directors.

The brick and tile plant at Rockford, Ia., has everything in readiness to commence making brick. George W. Kuck has been elected manager of the company.

George W. Kennedy has closed out his interests in the Manitowoc (Wis.) Clay Products Co. to E. Clark and Elmer Leach of Oshkosh. The plant will be retained there.

Peterson Larson & Sons, of Barronett, have incorporated their brick and tile plant, Cumberland, Wis., with a capital of $30,000. The plant will be enlarged and improved.

In connection with the recent $25,000 improvement in the plant of the Sheldon Brick Co., Urbana, Ill., representatives of that concern will appear before the city council at its next meeting to ask for permission to construct a half-mile sidetrack from the Illinois Traction System lines in Urbana to the brickyard.

The two brick plants at Decatur, Ill., have put out a total of 8,000,000 brick during the year just closed.

F. Wagner, vice-president of the Northwestern Terra Cotta Co., Chicago, sent $250 to the firemen who checked the fire at his plant.

Leon Vincent, Webb Vincent and the latter's three sons, Ft. Dodge, Ia., have announced that they will erect a large clay products plant next spring on land they own near that city.

The Falls Brick & Tile Co., Sheboygan, Wis., has made a sale of 250,000 brick to be used in a new parochial school building at St. Cloud.

The brick company at Moline, Ill., has been reorganized and the plant is being rebuilt at a cost of many thousands of dollars. Most of this money has been raised locally. It will bring returns in the near future which will be distributed locally. It will give employment to a great many men and contribute greatly to the prosperity of the city.

## AUSTRALIAN NOTES.

Sydney, Aust., Jan., 3.—Despite the coal strike and the temporary hesitation of enterprise by the reshuffling of political parties, the phenomenally prosperous march of Sydney construction is unchecked. The work of the year in the construction of Sydney has topped all previous great records. Here they are. What a wonderful tribute to our prosperity.

### Sydney's Building Records.

1907, £3,626,500.
1908, £4,752,991.
1909, £5,940,863.
1910, £6,366,723.

In estimating this great work we have had the assistance of the City Council, the Metropolitan Water and Sewerage Board. These great and progressive departments keep their fingers closely upon the pulse of Sydney construction. Take the City Council building fees. The total up to November 30 was £1704, with an estimate for the year of between £1850 and £1900. The total amount last year was £1762 7s. 3d., showing an increase in the city alone of no less than 7 per cent, nothwithstanding nearly three months' cessation of work owing to the coal strike at the beginning of the year.

In brick the turnover in the metropolitan area only equals that of last year, reaching about 130,000,000. This may be considered very satisfactory considering the strike, which prominent makers affirm reduced the supply by 12½ per cent on the year's turnover.

130,000,000 brick were used in Sydney during 1910—same average as 1909—but terra cotta increased 30 per cent.

The prospects for 1911 are remarkable. No year in our constructional history has opened with such promise. Many buildings of over ten stories are in prospect, including one in Kent street, two in Castlereagh street, two in George street, and Architect Rosenthal's great block, which is to cost £163,000. The Harbor Trust propose to spend £350,000. The Government expenditure is awaiting consideration early in the year.

The increase of construction in the country has also kept up a fair average. The Public Works Department reporting an expenditure for the year of over £500,000, with increased spending by local government authorities, the Sydney Harbor Trust are spending £283,900 on new work.

The Sydney Pressed Brick Company, whose plant is capable of turning out 20,000 bricks in 10 hours, is making pressed brick from granulated blast furnace slag. Their products are reported to be finding favor with builders and tradesmen. Large quantities are being used in the erection of buildings at the Dominion Iron and Steel Company's works, and the Sydney Academy is being built of these brick. They have also been used in the construction of several superior dwelling houses.

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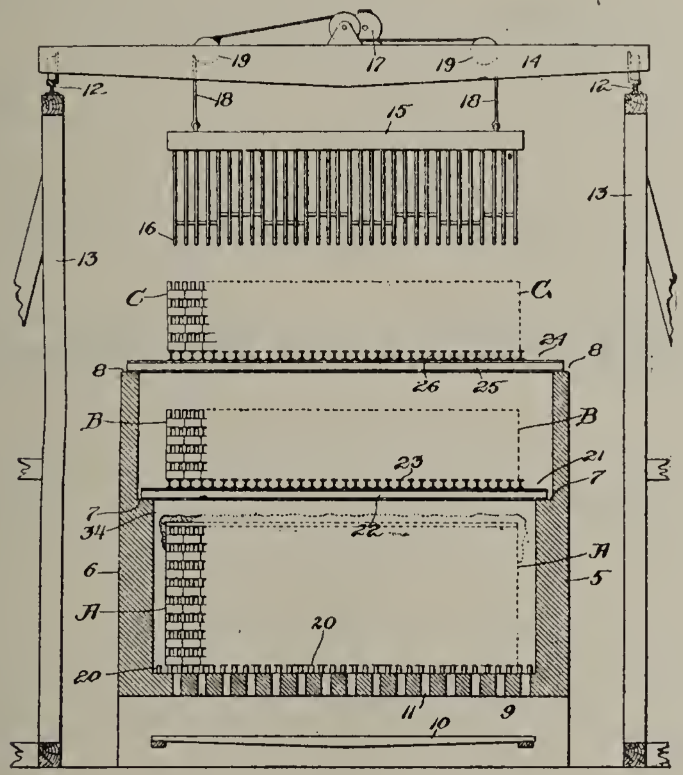
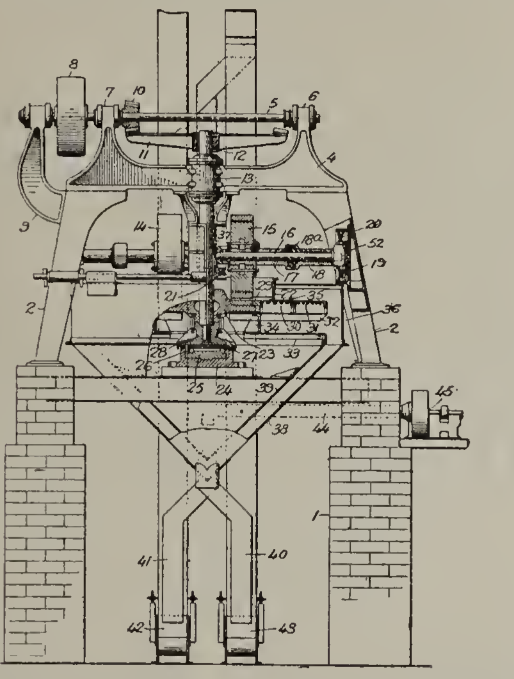
## NEW INVENTIONS THAT ARE OF INTEREST TO THE CLAY MANUFACTURER.

974,782—Brickmaking apparatus. Jonathan P. B. Fiske, Newton, Mass., assignor to Raymond C. Penfield, New York, N. Y. Filed Jan. 2, 1907. Serial No. 350,359. In a brick making apparatus, the combination with a kiln having permanent side walls, provided with supporting means adapted to receive a rack and permit the same to be moved bodily therefrom with a load of bricks, of said brick-supporting rack adapted to support a large mass of superposed bricks, said rack consisting of a horizontal open-work platform, permanently united together as a whole, and lifting means permanently secured to said platform in position to be out of contact with said superposed mass of bricks when stacked on the platform, said lifting means having a lateral width relatively to said platform for giving stability of position to the platform when said lifting means is engaged by a raising device for transportng the rack and its load of bricks from the kiln.



974,816-974,817-974,818—Dry pan. Raymond C. Penfield, New York, N. Y. Filed July 13, 1909. Serial No. 507,420. In a dry pan, the combination with a grinding base, of a primary screen, a secondary screen, said primary screen being situated in substantially the same plane as the grinding base, and both the primary and the secondary screens having a free outer edge, a surrounding husk, two hoppers below the screens, one for the tailings and the other for the screened clay, the outermost receiving the tailings, and the innermost the screened clay.



In a dry pan, the combination with a grinding base and mullers, of a primary screen having two sections one of which is stronger than the other, a stationary rim supported above the stronger section with an intervening space between it and the screen through which the ground material passes, a secondary screen below the primary screen, a surrounding husk, and hoppers below the screen, one for the tailings and the other for the screened clay.

## FREIGHT RATE CHANGES.

Philadelphia & Reading. I. C. C. J-2347. Common brick from Winslow Junction, N. J., to University, D. C., $2.05. Old brick bats from Steelton, Pa., to Sparrows Point, Md., $1.25 per net ton. Filed August 16th; effective September 16th.

Toledo, St. Louis & Western. I. C. C. No. A-169; Trf. No. 1169 B. Brick and articles taking same rate from stations on Toledo, St. Louis & Western, also Toledo Terminal R. R. to points in Iowa, Kentucky, Michigan, Missouri, New York, Pennsylvania, West Virginia and Wisconsin; effective September 17th.

Buffalo & Susquehanna. Sup. 3 to I. C. C. 1821; Trf. 2867. Clay and clay products from stations on Buffalo & Susquehanna to Geneva, N. Y., Bradford, Pa., and other points east; effective September 16th.

C. C. & O. Ry. I. C. C. No. 139. Common brick, pressed and paving, carloads minimum 10,000 brick from Kingsport, Tenn., to Chesnee, S. C., $1.72 per M. brick. Issued August 11th; effective September 15th.

Raritan River R. R. I. C. C. 1777. Brick, clay conduits and fireproofing, C. L., from all stations on Raritan River R. R. to Garden City, N. Y., $1.85 per net ton; effective September 20th.

Boston & Maine. I. C. C. No. L-1706. Common brick, C. L., from Putney, Vt., to Chester, Vt., $2.00 per M. brick; effective intrastate August 21st; interstate September 23rd.

Central Railroad of New Jersey. I. C. C. No. S-1984. Clay, C. L., from Keosbeys, Lehigh Gap, Lorillard, Maurer, Perth Amboy, Rockaway, N. J., to points on Long Island R. R.; effective September 25th.

C. R. R. of N. J. I. C. C. S-1989. Brick, C. L., from Cliffwood and Matawan, N. J., to Scranton, Pa., $1.90 per net ton; effective September 28th.

P. C. C. C. & St. L. Sup. 4 to I. C. C. P-226. Brick C. L., to Joliet, Ill., from stations on P. C. C. C. & St. L.; effective September 15th.

P. C. C. & St. L. Sup. 6 to I. C. C. P-208. Porous drain tile, C. L., from Marion, Ind., to Cutler, Ind., 5½ cents. Reduction intrastate August 23rd; interstate September 20th.

Chicago, Burlington & Quincy. Sup. 22 to I. C. C. 8867. Trf. No. 3400. Brick, C. L., from Rock Island and Moline, Ill., to Woodhull, Ill., 80c. Brick, C. L., from Peoria, Ill., to Cleveland to Ophiem, Ill.; Beardstown, Ill., $1 per net ton. Effective Jan. 20. G. H. Crosby, F. T. M., Chicago, Ill.

Mobile & Ohio R. R. Sup. 2 to I. C. C. A-671. Fire Brick from Cairo, Ill., to points in Ky., Tenn., Miss. and Ala., effective Jan. 15, 1911. Issued J. M. Deryven, Asst. G. F. A., New Orleans, La.

C. C. C. & St. Louis Ry. Co. Sup. 19 to I. C. C. 4871. Brick from Vincennes, Ind., to Akron, O., $2.20; Alexandria, Ind., $1.35; and other points, Illinois, Kentucky and Michigan. Dec. 29, 1910, state, and Feb. 1, 1911, interstate. Issued by W. T. Stevenson, C. T. B., C. C. C. & St. L. Ry.'s System, Cincinnati, O.

Central Ry. of N. J. I. C. C. 3005. Enameled brick, C. L., from Furmans, McDonoughs, New Brunswick, Sayreville, South River, Whiteheads Yard and Wrights, N. J., to Fort Monroe, Va., 15c. per 100 lbs. Effective Jan. 18, 1911.

Lake Erie, Alliance & Wheeling R. R. Sup. 5 to I. C. C. Y-259. Brick to North Bay, Ont., from Alliance, Dillonvale, Minerva and Palmyra, $4.70 per net ton. To Welland, Ont., from same points, $2.30 per net ton. Effective Jan. 15, 1911.

Lake Shore & Mich. Sou. Sup. 2 to I. C. C. A-2539. (Cancels Sup. 1). Advance. Brick from Hartford, O., Sharon, Pa., South Sharon, Pa. and Youngstown, Pa., to Toronto, Ont., $2.80 per net ton, minimum wt. 50,000 lbs. south of junction point, north of junction point 30,000 lbs. Effective Jan. 15, 1911.

B. & O. S. W. R. R. Sup. 7 to I. C. C. 6595. (Cancels Sups. Nos. 3 and 6). Brick, C. L., (except paving brick), from Portsmouth, O., to Windsor, Ont., $1.95 per net ton. Effective Jan. 11, 1911.

Boston & Albany R. R. I. C. C. 4916 R. R. No. 5142. Hollow Brick, C. L., from Albany, N. Y., to Wingdale, N. Y., $1.75 per net ton. Jan. 7, 1911.

O. & L. Sup. 9 to I. C. C. 1551 (Cancels Sups. 7 and 8). Oregon Short Line Sup. 9 to I. C. C. 155. Brick, C. L., from Anaconda, Mont., to Devils Slide, Utah, 25c. Jan. 11. J. A. Reeves, G. F. A., Salt Lake City, Utah.

Wabash. Sup. 6 to I. C. C. 2326. Trf. F-5172. (Cancels Sup. 5). Common Brick, C. L., from Chicago, Ill., to Bridgeton, Mo., $1.90 per net ton; effective Dec. 10 (authority Rule 56 Trf. Cir. 17a.) F. A. Barber, Chf. T. B., St. Louis, Mo.

C. R. R. of N. J. Sup. 11 to I. C. C. S-345. (Cancels Sup. 11). Brick, C. L., from Keasbeys, Maurer, Perth Amboy and Sewaren, N. J., to Corons, Pa., $1.30 per net ton. Jan. 11. Issued by C. L. Ewing, Chf. T. B., New York City.

C. & A. Sup. 3 to I. C. C. 15. Trf. No. 1181-A. Drain tile, C. L., from Streator, Ill., to Peoria, Pekin, Bartonville, Colliers, $4.75; Romeo, Ill., 4c.; Toluca, Ill., 3.8c.; effective, state, Nov. 9, interstate Jan. 11.

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(Entered as Second-Class Matter, January 2, 1911, at the Postoffice at Chicago, Ill.,
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The First Session of the N. B. M. A. at Louisville, Showing the Familiar Faces of Many of the Prominent Leaders of the Industry

VOL. XXXVIII—NO. 4

BRICK
AND CLAY RECORD

FEBRUARY 15, 1911

# NEXT NATIONAL IN CHICAGO

## Promotion of Clay Products by the N. B. M. A. and B. B. A. and Endorsement of the National Brick and Clay Products Show, to be Held in Chicago in 1912, the Big Features of the Louisville Convention

The value of the work of any convention is measured by its accomplishments, and, therefore, in reviewing the proceedings of a gathering such as took place in Louisville, Ky., during the first week of the month, the chief interest is in the results secured. In line with the progressive spirit which seems to have taken possession of clay products manufacturers throughout the country, the Louisville convention resulted in giving clay products another important boost. This result was largely accomplished through the enthusiasm and energy of those interested in the Building Brick Association of America, which organization met in conjunction with the National Brick Manufacturers' Association.

Silver Anniversary Badge.

It is quite certain that with the enthusiasm aroused at this meeting, and with the practical and promising plans outlined for the association work during the coming year, a sufficient sum will be raised through subscriptions and new memberships to enable the B. B. A. to carry on its campaign of education for the accomplishment of the purposes of those interested. The aim of the association is to secure a fund of at least $25,000 this year, for printing and advertising, and it is certain that if such a sum can be expended for publicity purposes the building brick interests will receive a vast benefit through the education of the public to the superior merits, advantages and economies of brick as a building material.

The officers of the National Brick Manufacturers' Association made no mistake in selecting Louisville as the location for the convention this year. It is a most beautiful city of many attractions, fully living up to its reputation for southern hospitality, and while known as the Gateway to the South, it can equally be called the Gateway to the North. It is evident that the brethren from the "Sunny South" appreciated the holding of the convention south of Mason and Dixon's line, for the southern states sent a goodly number of representatives, many more than are usually present at a national convention.

The attendance was very gratifying, and representative of the clay interests of the entire country.

The final roster contained 480 names. While this is not as large an enrollment as at Pittsburg last year, yet it is ahead of many past conventions.

A well arranged and carefully prepared program of papers and discussions, made all the sessions of the National Association interesting and profitable. Many of these papers were of considerable importance, and their publication in succeeding issues will be an interesting feature of "Brick and Clay Record."

### Endorse The Clay Show.

In line with the awakening, clay products manufacturers at the convention, expressed their approval of a stronger effort in promoting their interests by the hearty endorsement given to the National Brick and Clay Products Exposition, which is to be held in Chicago, early in 1912. The association voted to hold its next convention in that city in conjunction with the clay products show, the following resolution being passed unanimously:

*Resolved, That it is the sense of this Association that the Executive Committee be directed to arrange to hold the next annual meeting of the N. B. M. A. at Chicago at the time of the proposed Brick Clay Products Show, to be held in January or February, 1912; and as soon as the dates can be fixed, the earliest possible notice of such meeting shall be published.*

The passage of this resolution followed a very cordial invitation given by Mr. C. B. Vernoy, vice-president of the Illinois Brick Co., in behalf of the clay interests of Chicago and in behalf of the Illinois State Association, in which Mr. Vernoy expresed the hope that the members of the association would give their hearty co-operation in the movement for the National Brick and Clay Products Show.

At the big Middle West Clay Convention, held by the Illinois Association in Chicago, recently, it was voted that Mr. W. D. Gates, president of that association, should appoint a committee of five to have charge of the preliminary organization necessary to make the proposed show a fact. Mr. Gates purposely left a vacancy on this committee to enable the N. B. M. A. to select from their number a representative and at the Louisville convention, Mr. T. A. Randall of Indianapolis, secretary of the association, was elected to fill that vacancy.

This was the first time, in the history of the N. B. M. A., that the selection of a place for holding the next convention, has been made at the annual meeting and it is thought that the plan will have excellent results in giving long notice in advance, to the membership. The selection of Chicago as the place for the next national gathering, also determines the next meeting place for the Building Brick Association of America and for the National Paving Brick Manufacturers' Association. It also influenced the determination of the American Ceramic Society, in their decision to hold their next annual meeting in Chicago at the time of the brick and clay products show. It is believed that it will be possible to secure the affiliation in this movement of the U. S. Potters' Association, the Floor and Wall Tile Association, the Western Clay Products Bureau, which is the working organization of sewer pipe manufacturers, also the members of the Drain Tile Bureau. It can thus be seen that Chicago is booked next year, for the largest and most important gathering of clay workers ever held in the history of this, or any other country. The Brick and Clay Products Exposition itself will bring thousands of visitors and the fact that all the National Conventions will be held at the same time, will largely increase the attendance.

Secretary T. A. Randall and His Son, J. E. Randall.

The Illinois State Association and the clay products men of the city of Chicago have assumed a great responsibility, in this matter, as it is up to them to co-operate fully to make this gathering satisfactory in every way. Mr. W. D. Gates, president of the Illinois State Association, elected at the last Middle West Clay Convention, will virtually be "the man of the hour" as much of the success of the entire enterprise will devolve upon him. Mr. Gates is, however, a man who can well shoulder the responsibility, and no one in the entire clay industry is better fitted for the important position which he occupies. He has long been affiliated with the clay interests and has been prominent in all the affairs of the N. B. M. A. and the American Ceramic Society. He is a practical claymaker himself, and head of the American Terra Cotta Co. of Chicago.

As heretofore outlined, the Brick and Clay Products Show will be an event of national importance. It will be a proposition much broader than any one man, or any coterie of men, and for that reason right at the start any possible feeling of jealousy or prejudice should be eliminated from the minds of the clayworking fraternity. The show will be backed by a corporation and will be operated on a practical and business-like basis. The stock subscription books are open and all interested are invited to become partners in the enterprise. It can be said, however, that sufficient stock has already been subscribed to insure the capital required to make the project a success. It will be an enterprise, representative of all the various clay interests and each and all of them have a fair share in the benefits and in the management. While not a philanthropic enterprise, it will be conducted with the primal purpose of furthering the interests of the great clay products industry. It, therefore, should have the hearty support and enthusiastic co-operation of every manufacturer of clay products of whatever kind or nature, throughout the United States.

### The New Officers.

Much of the success of the convention is due to the energy and attention of the retiring president, Mr. W. P. Blair, who made a most excellent presiding officer, and whose opening address was of much interest. Mr. Blair was certainly the busiest man at the convention, for in addition to his duties as president of the N. B. M. A., he also had the care of the convention of the National Paving Brick Manufacturers Association, of which he is the secretary.

According to the practice of previous years the first vice-president, Mr. Charles M. Crook, head of the Bessemer Limestone Co., Youngstown, Ohio, became the new president of the association. This advanced C. A. Bloomfield, second vice-president, to the first vice-presidency, and W. H. H. Rogers, of Rochester, N. Y., to the second vice-presidency. Therefore, the only new election was that of Mr. Eben Rogers, of Alton, Ill., as third vice-president, putting him in line for the presidency three years hence. That veteran clay worker and able representative of the Sunny South, Hon. John W. Sibley, of Birmingham, Ala., was again re-elected treasurer and Mr. T. A. Randall, of Indianapolis, in recognition of his many years of faithful service, was again made secretary.

The work carried on by the committee on technical investigation is one of the most important enterprises of the National Association and the committee is always composed of leading ceramists. The term of Hon. Anthony Ittner, of St. Louis, having expired, he was renominated but refused to serve again on the committee, and Prof. A. V. Bleininger, head of the ceramic department of the University of Illinois was elected to fill the vacancy. This committee now consists of Prof. Ross C. Purdy, Prof. Edw. Orton, W. D. Richardson, Prof. A. V. Bleininger and D. V. Purington.

A Group of Prominent Delegates.

### Louisville Hospitality.

This is the second time in its history that the National Association has held its annual convention in Louisville, having last gathered in that city in January, 1893. While there are not a large number of clay industries in the Louisville district, yet the local representatives of the clay interests made up in the cordiality of their reception for their lack of numbers and are certainly entitled to the hearty thanks of the delegates for their friendliness and hospitality.

They did everything possible to make the conventioners feel at home, and their arrangements for entertainment and care of their guests were most excellent. Officers and committees of the Louisville Brick Club, organized for the purpose, were as follows:

Executive Committee—T. Bishop, president; M. J. Bannon, vice-president; John G. Morey, vice-president; J. Crow Taylor, secretary; Owen Tyler, treasurer.

Finance Committee—Owen Tyler, A. Dumesnil, Jos. Nevin, M. J. Bannon, K. P. Grahn, C. A. Parker, A. Hillenbrand, H. Kleymeyer, A. F. Hegenwald, Chas. Akers, Thos. B. Crutcher, John G. Morey, W. J. Watkins and August Mayer.

Entertainment Committee—John G. Morey, Owen Tyler and R. W. Brown.

Reception Committee—M. J. Bannon, C. A. Parker, K. P. Grahn, Jos. Nevin, W. A. Adams, W. K. Seirp, Robt. E. Woods, W. J. Watkins, Isaac Tylor, A. Hillenbrand, August Mayer, Thos. B. Crutcher, Jos. Cicotte, E. C. Hegenwald, J. W. A. Myers, H. Katterjohn and H. C. Kleymeyer.

The entertainment of the ladies accompanying their husbands to the convention was one of the features of the Louisville gathering. The local entertainment committee had made especially elaborate arrangements for their pleasure and a series of enjoyable events occupied their time fully. Among other features was a Valentine bridge party, several theatre parties and a car trip about the city.

### A Silver Anniversary.

This being the twenty-fifth annual convention of the N. B. M. A., it was happily called the Silver Anniversary, and in commemoration of the event an especially designed badge had been struck off, the face of which reproduced a likeness of the secretary, Mr. Randall. The Seelbach Hotel proved a very convenient and pleasing convention quarters. Its large assembly room on the tenth floor has commodious accommodations for the holding of the convention sessions and also for the display of the exhibits of clay products and of the machinery and equipment manufacturers. These exhibits were very attractively arranged, and of much interest. They are more fully described elsewhere in this report.

**First Photograph B. B. A. Directors. Bottom Row, Left to Right—J. Parker B. Fiske, Sec.-treas.; William Hanley, R. L. Queisser (Elected Pres.), R. G. Eisenhart, H. J. Lee (Chief Clerk of the B. B. A.), John W. Sibley.**
**Middle Row, Left to Right—T. C. Moulding, W. J. Snyder, S. M. Gould, Arthur D. Rogers.**
**Top Row, Left to Right—J. Howard Chambers, F. W. Butterworth, R. E. Sunderland, E. J. Burke, Ralph Simpkins, J. M. Adams.**

The meeting of the Paving Brick Association and of the Building Brick Association occupied the first two days, the sessions of the National Brick Manufacturers' Association commencing Wednesday afternoon, and lasting through Thursday and Friday. The annual banquet was served on Thursday evening in the banquet hall of the Seelbach Hotel.

The guest of honor was Hon. Augustus E. Wilson, governor of Kentucky. He gave the principal address of the evening. The Louisville Brickmakers' Club entertained the delegates on Wednesday evening by an enjoyable "smoker." Theater parties afforded enjoyment for many of those attending.

### The Convention Sessions.

The actual work of the N. B. M. A. convention commenced on Wednesday afternoon with the usual routine business, including the election of officers.

Mayor W. O. Head delivered the welcoming address, in which he spoke to the convention as "home builders" and declared that inasmuch as on every hand the members saw evidences of their handiwork no formal welcome was needed to Louisville. This city, he said, is essentially a brick town, and it has every kind of brick except the kinds to throw. He added:

Charles M. Crook, of Youngstown, O., the New President of the N. B. M. A.

"When it comes to common brick and front brick, ornamental brick and vitrified paving brick, enameled brick, fire partition brick and the more ornamental terra cotta, why we want to tell you that we are proud of our brick town. Louisville is well to the front in clay products. Here we manufacture soft mud, stiff mud, dry press and hand-made brick, fire brick, vitrified, salt-glazed sewer pipe, terra cotta in a limited way, wall copings, chimney tops, drain tile, hollow building blocks, fire-proofing materials, locomotive tiles, fire clay specialties, pottery and paving brick.

"The Gateway City of the New and Old South, this thrifty metropolis on the border between the aggressive, hustling North and the busy, progressive Dixie land, certainly does make real brick, but you gentlemen know all about that. Maybe some of you know that Pharaoh was one of the original foremen or overseers in the brick-making business in the time of the children of Israel. What a taskmaster he was! He made things interesting, and he began with Moses and Aaron. He chided them along with the children of Israel concerning the making of brick. In those days straw was used for brick instead of clay.

"Pharoah refused to supply the material, yet he protested when the goods were not delivered. He said there was too much idleness, and this led the people to gather stubble instead of straw, but it developed industry and ultimately the evolution of brick. After that, a long time afterward, the Roman wall separating England from Scotland was built, and, because of the strength of the cement and the durability of the stone, the inhabitants called it the Devil's Wall, because they thought the devil had built it."

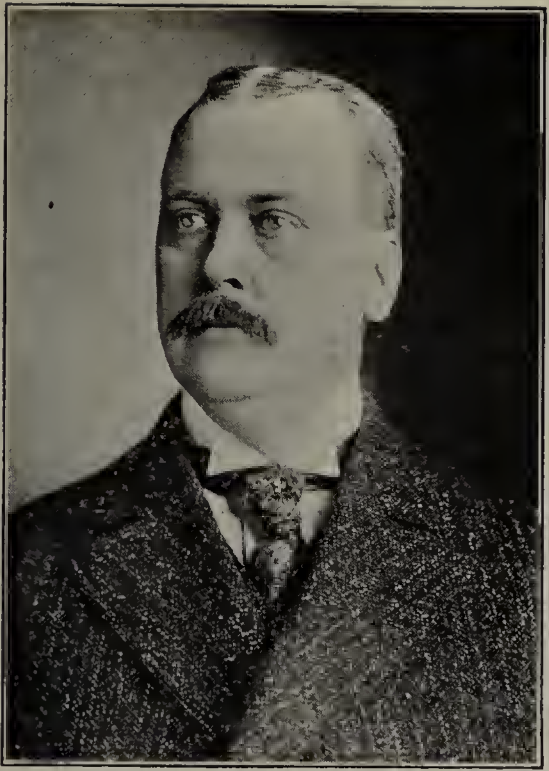
The response to Mayor Head's welcome address was given by G. W. McNees of Kittanning, Pa. President Blair then delivered his address as follows:

#### President's Address.

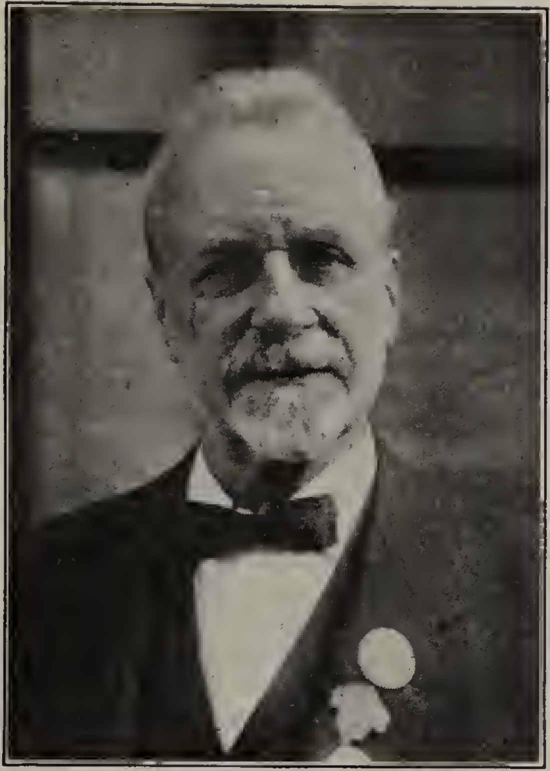
The twenty-fifth anniversary of the National Brick Manufacturers' Association marks a high tide of interest historically and practically. It occurs at a time when this country is viewing her reckless past in utter amazement. The country has been unable to poise herself after the shock suffered from this restrospect. A cry has gone up in the interests of the future, demanding that our natural resources shall hereafter be conserved for the benefit of the country's welfare. This cry of alarm has taken on almost a mob-like spirit. On the one hand, it is demanded that the resources of our country shall not fall into the hands of a favored few for distribution when needed, but rather shall be preserved for a larger distribution by the many, for the benefit of all. On the other hand, there seems to be a demand for a limitation against the use and consumption of whatever we may wish or whatever we are able to purchase, that natural resources shall be apportioned under a limitation rule so that it may not be said in the future that our country has either been guilty of extravagance or prodigality.

C. A. Bloomfield, Metuchen, N. J., Elected First Vice President and Presiding Officer at the Louisville Convention.

Whatever be the outcome of this condition as may be developed by the philosophy of our own civilization, we can scarcely predict. That a better regulation in all these



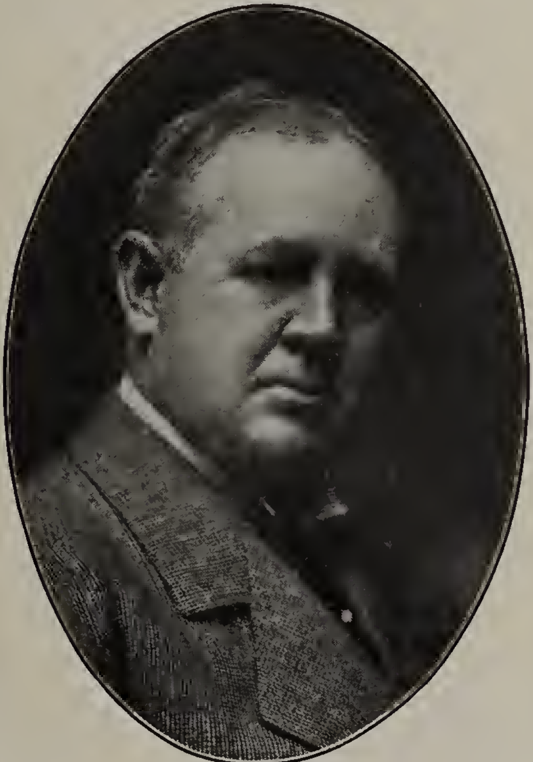
J. W. Sibley, Birmingham, Ala.



Hon. Anthony M. Ittner, St. Louis, Mo.

E. J. Burke, President of the New Burke Brick Co., Rochester, N. Y.

F. C. Talbot, Supt. Laclede-Christy Clay Products Co., St. Louis, Mo.



O. N. Townsend, Townsend Bk. & Cons. Co., Zanesville, O.

W. S. Dickey, Dickey Clay Mfg. Co., Kansas City, Mo.

C. N. Adams, Alexandria, La.

J. M. Hoskins, Terre Haute (Ind.) Vit. Brick Co.

M. E. Gregory, Corning, N. Y., Ex-president N. B. M. A.

matters will be developed to the ultimate good of society and to the future good of the country, I doubt not, but aside from all this as shown in the history of the world, history must repeat itself time and again and will repeat itself now. Conservation for futurity is best solved by substitution. If you cannot have bread to eat, eat meat; if you can't have meat, become a vegetarian. A large part of the world lives on bananas; another part eat rice and fish.

Because the wonderful forests of this country have heretofore furnished the great proportion of domestic utilities and conveniences, there is no reason why we should look for a continuance. There is no reason why our country should pass through a period of the slowly awakening process. Full and complete relief may be had and may be had at once, if the clay working fraternity in this country will with one united effort direct the attention of the country to the possibilities of substitution that are to be found in her products. A house without a single piece of wood in it, its embellishment inside and out, its adornment, its utilities are now quite possible by the craft and skill of the members of this association. A greater opportunity has never been presented to our industry. A failure to grasp the situation, to take advantage of conditions would be a commercial crime. It would be none the less a crime that efforts in this direction should be undertaken with dilatory action and feeble hands.

That the allied and organized efforts carrying out the fundamentals of this association have been stronger in evidence during the past few years, is gladly conceded but that these shall become more united, more determined and more persistent in their efforts is unquestionably true.

The American Ceramic Society has done a great work, but its work is in its infancy. The Natinal Paving Brick Manufacturers' Association has impressed the economy and desirability of paving brick upon the American municipalities to an extraordinary degree, but that organization needs the stimulation of unity and the appreciation of its own worth and character as an American institution. What they have done has been well done but what they may do is absolutely necessary for the supremacy of their product. As their efforts grow united and thus become strong, the desired recognition will come in all its completeness.

A publicity committee was urged into existence by this association for the especial purpose of bringing all kinds of building brick into public favor. Unfortunately that committee has left behind it a taint of misunderstanding and liability that should be completely wiped out and closed up by this present meeting. Its work, however, sowed the seed that brought forth fruit that has been worth while. This effort was followed by the organization of the Clay Products' Association which did stronger and better work. It was again followed by The Building Brick Association of America and for what it has accomplished during the past year, there is not a single producer of clay goods in this country that is not its debtor and I am frank to say that the manufacturer who either throws cold water on the efforts of any of these organizations, or who even stands idly by, though without condemnation or commendation, is not only an enemy to the craft but an enemy to himself.

I do not deem it worth while to review the conditions of the past year in a way to remind you as to whether or not your business has been one of profit or loss. It is enough to say and I feel that I ought to say as much, that each one of you have done as well as you deserved. The thing that I would rather impress upon you is that you shall deserve more. Think you, that the number of neatly equipped bath rooms that have come into the modest homes of our countrymen by the thousands and which have taken the place in the last few years of the wash basin, the wash tub, the creek, and the mill pond and even brought a bath where no bath had been—think you this and all this would have taken place, but for the insistent picture that meets the eye every time a magazine is opened? The advantage, the comfort, the economy of our entire production must necessarily be brought to the attention of everybody in this country, if you would have everybody buy who can.

At no time should the spirit of jealousy be manifest. It is without excuse or reason. Time employed in its consideration is worse than thrown away. If you have any time left after giving your own business and your own line all the attention it requires, bestow a favor upon your neighbor or even your competitor. It matters not what your line, whether of face brick, hollow goods, backers or liners, whether you can make the poorest or the best of goods, if you cannot devote all your time to its production and sale, exercise charity and benevolence rather than hunting cause for a grouch. A sale of the best clay working product very often opens the way for the poorest and a sale of the poorest often opens the way for the sale of the best. There are practical uses for all classes of goods commercially manufactured today and while this is true all must concede that the demand of the American public in many respects is changing. Few expenditures are made for the day or the season; the greater portion being as an investment pure and simple. Therefore permanency and economy are the chief factors that control.

It is your duty, therefore, to make the very best product that your situation and material will permit. It would seem that the solid structures that are being built in our larger cities would meet the demands of civilization for hundreds of years to come. At any rate, it is believed to be so. It is not expected that the building erected today in 25 or 30 years from now will be torn down and replaced by others, but they are expected to last a hundred and even a thousand years. We must therefore furnish the material to meet this requirement. In this respect we have seen a revolution take place in the last few years. What satisfied the market five years ago will not at all answer today. In many respects we have kept pace with this demand. Never before were brick manufactured of so high a quality. Never before were brick so economically manufactured. While the price of labor has almost doubled in the past few years, the price of brick has practically remained the same. Economical methods are being continually introduced. Not all of them that are suggested, are by any means what they are alleged to be. If it were so, by lopping off 25c a thousand here and 25c a thousand there as contended by the claimants, we should soon be making brick for nothing. But in spite of improvements in manufacture and in spite of the long period of time since the manufacture of clay products was undertaken, we really know but little about it and we are far and away from being masters of it. It is an inviting, an interesting and even an enticing study. Great fame awaits the man who understands possible structural processes in the molding of clays alone. The combined genius of craftsmen and machinemen has accomplished but little in this direction. It seems like saying much that 300,000 brick can be pushed through a single machine in every ten hours, or that 100,000 10-lb. paving block is an ordinary day's run for a single machine, but really a blush of incompetency must come to us when we walk from our own machine and stand before the great printing press of the day. A vast field of research work lies before the clay working industry of this country. To the outsiders it may seem a simple problem but it is not.

We have knocked at the door of Congress for many years asking national aid. Finally our petition has been granted and henceforth we may expect, at the hands of the Bureau of Standards, co-operative efforts to solve the thousand and one problems that confront us. Not alone in the manufacture of clay products are the problems that hinder and delay, but a far greater field is open that their uses may be properly understood and appreciated by the public. The educational features of our various promotional organizations are of the utmost importance. Time will not permit me to enter into the discussion of these features incidental to encouraging the sale and use of clay goods. In the abode of man by night and in the provision for his footsteps by day, in hundreds of ways the use of clay for domestic and public purposes walks hand in hand with the discoveries of medical science in the provision of a sanitary condition for the benefit of mankind. Nor must it be considered for a moment that clay products are limited to features of utility, economy and comfort. The demands of art and beauty are fully and completely met.

The whole people should know of these things. Conditions should be common knowledge, such as are found in the vicinity of Wade Park, Cleveland, Ohio, where the residences of brick embellished with terra cotta and streets with brick pavements, are each constructed with skill and artistic beauty and such possibilities of brick pavements as are found in the driveways of the new Pennsylvania depot of New York City, which habitations and streets if not closely akin to the New Jerusalem, at least approach an ideal paradise and dominion here below that should satisfy every creature.

The report of the treasurer, Hon. John W. Sibley, of Birmingham, Ala., was a subject for congratulation, showing a balance on hand in the treasury of over $400. Mr. Sibley has made such a satisfactory treasurer, that it is the unanimous opinion that he should remain in that office for the remainder of his life. His reports are always enjoyable for the reason, that the rule has been established that he must accompany every report with a good joke and he has never failed to carry out this requirement of his office. In fact, Mr. Sibley's jokes and stories are famous and he is one of the most popular of the "old guard."

### Report of Committee on Resolutions.

Whereas, It has been the pleasure of an all wise Providence to bless this, the twenty-fifth convention, with unusual success and good fellowship,

Whereas, This success is but a reflection of a prosperity enjoyed during the past year by the members of our organization, our neighbors, our cities, our states, and our country, and,

Whereas, Our government and our people have been free from the discouragement attendant upon public disaster, panic, plague and foreign complications; therefore, be it

Resolved, That we do return thanks for these and other blessings.

Resolved, That we do thank the representatives of the hospitable City of Louisville, and through them the people and the great State of Kentucky, whose pride she is, and whose interests she represents, for the hearty welcome and entertainment we have enjoyed.

Resolved, That we thank our brother craftsmen of the Brick Club of Louisville, and the officers of same, upon whom have fallen the details of the splendid arrangements for our comfort, welfare and pleasure during our sojourn in their midst; and extend to them our heartfelt wishes for prosperity in the days to come.

Resolved, That we pledge our hearty individual and united support to the affiliated bodies of this organization—The Building Brick Association of America, The National Paving Brick Manufacturers' Association, and The American Ceramic Society. We regret the conditions which have prevented the meeting with us, as a body, of The American Ceramic Society, and which have prevented them from enjoying the benefits and privileges of this meeting. We urge upon its officers that future meetings, in so far as possible, be so arranged that we will not be deprived of their attendance, support and co-operation from which we have benefited in years that have passed.

Some Representative Chicago Brick and Machinery Men.

Resolved, That we further urge the hearty co-operation and closer working understanding in the matter of publicity for clay products through our general secretary, Mr. T. A. Randall, the secretary of the Building Brick Association; Mr. Parker B. Fiske, the secretary of the National Paving Brick Manufacturers' Association; Mr. Will P. Blair, and the secretary, Mr. George H. Tefft, of that younger organization, The Western Clay Products' Publicity Bureau, which is without the fold of the N. B. M. A. in name only.

Resolved, That we urge upon the members and officers of each of these organizations their hearty co-operation in the proposed clay products show to be given in Chicago in the year 1912. That the officers effect as much publicity for this proposed show as possible. That the attendance at the convention which is to be held at the same time, shall mark a rallying point in the history of the clay products industry. That our membership, our patrons, our friends will rally about the standard of the N. B. M. A and lay before the people of the American continent the advantages of clay products, for whatever use they may be applied, over any other material which has been or may be proposed.

Resolved, That it is the sense of this convention that we do appreciate the aid which is proposed to be given the clay workers of this United States in the solving of technical problems by the Bureau of Standards. We believe our membership should furnish the working force in this Government Bureau every facility in their power, of raw material and finished products for experimental research work, that we may derive benefit from these investigations, that we may better know our products, their weakness, their strength. We believe that the aid which is to be extended by this bureau will prove a benefit and a source of satisfaction, not only to the members of this organization and other clay workers who are not members of this organization, but also to the general public, and result in carrying out the policy of conservation of the natural resources now being agitated.

Resolved, That it is with extreme sorrow and regret that we record during the past year the death of three of our prominent members: G. S. Perdue, Firebrick, Ky.; John H. Gray, Chicago, Ill.; Harrison Everet Ashley, Pittsburg, Pa.

Resolved, That we regret the untimely illness of our beloved president, Mr. Charles M. Crook, Youngstown, Ohio, which has prevented his presence at this convention. Each and every member of this association has missed his presence, his encouragment and his help, which in the past he has given so freely. We trust and hope for his speedy recovery to complete health, and extend to his family our sympathy in their trial, and our best wishes for restored happiness and contentment.

Resolved, Since by the inexorable decree of Providence there has been removed from our midst, in the prime of his life, Mr. Harrison Everett Ashley, Ceramist of the Bureau of Standards, a man of the greatest probity and integrity of character, tireless devotion to the cause of science as applied to ceramics, modesty and eagerness to help his fellow men, be it

Resolved herewith, That we express our sense of the loss we, as well as the entire clay industry, have sustained, by the untimely removal of this fine character. That this expression be incorporated in the minutes of the association and communicated to the bereaved family of our departed friend.

Whereas, the Clay Machinery Manufacturers' Association has appointed a committee to endeavor to secure from the railroads a definite and proper classification for clayworking machinery to the end that lower and more equitable rates be secured thereon, and,

Whereas, the said Machinery Manufacturers' Association has instructed its committee to secure expert assistance and has authorized an expenditure of $250 for this purpose, Now, therefore, inasmuch as the members of the National Brick Manufacturers' Association are directly interested in the results desired to be obtained, be it resolved that the N. B. M. A. appoint a committee to co-operate, and that the said committee be authorized to expend a like sum of $250 jointly with the machinery manufacturers, so much thereof as may be necessary, said committee to make its report to the National Association meeting at its next annual convention.

It was quite fitting that the opening paper at the convention should strike the keynote of publicity, and the address by Mr. R. E. Sunderland of Omaha, Neb., fulfilled all expectations. Among other trite remarks of the speaker was the following:

"We have simply been asleep," said Mr. Sunderland. "We have not advertised. Our competitors have advertised, and as a result they are getting the business. When you buy soap or flour or any other commodity, what brand do you buy? The brand you always see advertised, of course. It is the same way with the homemaker. When he proposes to build a home he simply goes by the advertisements, and he never sees a brick advertisement. The only advertisements he sees are of cement and stucco and woodwork. Consequently we lose his trade. He almost forgets there is such a thing as brick. It is now up to the brick manufacturers to advertise if they want to keep in the market."

OFFICERS OF THE B. B. A.

R. L. Queisser, President. J. Parker B. Fiske, Secretary.

Among other interesting features of the opening session was the presentation by numerous friends of a handsome gift to Miss Addie M. Wallace, assistant secretary, as a token of appreciation for her faithful services during the past twenty years. Friends also presented a handsome piece of silver as a gift to Miss Adelaide Randall Gould, granddaughter of the secretary, and the young lady was brought into the convention hall and introduced as the youngest member of the association.

At the smoker on Wednesday evening, a most interesting and enjoyable lecture was delivered by Geo. H. Tefft, of Kansas City, in charge of the work of the Western Clay Products Publicity Bureau. His talk was illustrated with stereopticon views and was of considerable technical importance, entering very fully into the details of the manufacture of vitrified clay sewer pipe. An interesting feature of the evening was the showing on the screen by Mr. R. C. Penfield of a collection of views of exhibits made at the last English clay products show, giving some idea as to the possibilities for display of clay products at the coming National Brick and Clay Products Exposition to be held in Chicago next year.

The session of Thursday morning was devoted entirely to the interests of the Building Brick Association and was, in fact, a publicity meeting. It is expected that the enthusiasm aroused at this meeting will be very beneficial to the brick interests.

In the absence of Mr. Crook, the new president, who is reported seriously ill, the remaining sessions of the convention were presided over by the new vice-president, Mr. C. A. Bloomfield, a veteran clay manufacturer who has been prominent in national affairs for many years.

The session Thursday afternoon was largely of a technical character. This included an address by Ellsworth Ogden of Zanesville, O., on "Rejuvenation of Brick Plants," followed by a discussion on the subject led by R. G. Eisenhart of Horseheads, N. Y. A paper of considerable interest was that on "Natural versus Artificial Draft," by John C. Boss, of Elkhart, Ind.

The time of the remaining sessions of the convention was filled by the presentation of a considerable number of interesting and important papers which will be published in succeeding issues. One of these was "System in the Clay Plant," by W. E. Gregory, of Corning, N. Y.

"The insane asylums," said the speaker, "are filled with broken-down business men who have made failures of comparatively small enterprises, while men like Morgan, Rockefeller and other captains of finance direct great enterprises seemingly without difficulty because of system." Mr. Gregory advised brick manufacturers to have a system in the handling of men, in figuring the cost of production and other details. He favored the piecework plan as against the system of day work, declaring that under the former the employes usually took more interest in their work and produced a better quality of brick than under the day-work system.

A paper was read by George Kneisley, of Chicago, on "Manganese Steel Applied to Ceramic Conditions," and great interest was taken in it by the delegates. Mr. Kneisley emphasized the fact that while the initial cost of the manganese steel was greater than chilled iron or ordinary steel the wearing qualities were much greater. Following his paper, Mr. Kneisley answered various questions propounded him by different members of the association.

Prof. A. V. Bleininger spoke on "The Manufacture and Testing Fire Brick," in which those present showed a decided interest. A discussion on this subject followed Mr. Bleininger's paper.

The Banquet at the Seelbach.

### Building Brick Association.

There has been a decided increase in the membership of the Building Brick Association during the last fiscal year, this increase being due to the great work of the officials in proving to all building brick manufacturers the advantages to be gained by being identified with the "B. B. A."

When the association met at Louisville the total membership was less than 200 and now it is nearing the 300 mark, a most remarkable record.

The meeting at the Seelbach Hotel, Louisville, Ky., was held in the red room and was a session filled with interest from beginning to end.

A Group of Conventioners.

In opening the 1911 meeting of the "B. B. A.," President R. L. Queisser, of the Queisser-Bliss Co., of Cleveland, O., said:

### President Queisser's Address.

Gentlemen of the building brick association of America:

It is with feelings of regret, mingled with pleasure that I call this meeting to order today. Regret, because of the absence of our esteemed president, Mr. Martin, who is in California on account of ill health, and not able to be with us in person to preside. It is unfortunate that we are not to have the benefit of his wise counsel and clear, keen judgment. Pleasure, because of the honor and privilege that is mine in the opportunity of presiding over the deliberations of the first annual meeting of this association.

**"The Man of the Hour," W. D. Gates, President of the Illinois State Association. Who Will Play a Prominent Part in the Coming Clay Products Exposition and Big Gathering at Chicago.**

The first mile-stone has been triumphantly passed. We now look forward to the future with the hope of even better things and greater accomplishments.

Progress is the keynote of the whole world movement; without it, things stand still and to do that in business is to take the first step to failure and dissolution.

The hope for progress is inherent in all—it is the beacon that beckons, the guiding star that leads us on to renewed effort, increased responsibilities, and final achievements. Wisely indeed have those builded who first conceived the thought of this organization as an aid to progress.

For what does this association stand, for what purpose was it organized? Surely for one purpose only and that the advancement, the perfection, the betterment and necessarily the enlargement of our business field; all of that spells progress, individuality and collectivity.

Singly, we can do little—collectively much, and hence our worth as an association depends not upon one, not upon any few, but upon the earnest, untiring, and united efforts of the many. I am certain that the scope, the importance of the work it needs to do and the possibilities of this association are scarcely appreciated at this time.

As an association of "pushers of the brick business," we are pioneers; but at that we merely follow a path, well trodden by those of other trades and interests that apparently have been wiser than we, and taking time by the forelock, have waived aside personal feeling, petty jealousies and joined hands for their general welfare, the common good and, necessarily, personal profit.

Let us not deceive ourselves with any false notions, let us admit that we are here for selffish interests and what then? Surely we are justified in being interested primarily in the growth of our own business, in its individual advancement and the profit that accrues?

But by what method—by what means are we to obtain that growth? The answer is easy. Many of you heard, and many more have read, that splendid thorough address by Mr. Frothingham, delivered at the last convention, on the subject of "Publicity." Advertising we call it, and those of you that have tried that method—tried it faithfully, consistently, and understandingly will bear witness of the fruitful results of your campaign.

Mr. Frothingham is a layman, yet with that peculiar insight, broad view of business conditions, and prophetic nature of men of his kind, he has diagnosed the conditions of the brick business internally and externally—better almost than any of you with your first handed and inside knowledge of affairs could have explained it. His address, clear, concise, full of biting facts, clearly demonstrated how apparently careless, negligent and unappreciative you all have been of your opportunities to turn the public to the realization of the facts, as you know them, of the supremely superior qualities of brick as a building material. All that is necessary to bring about this almost millenium condition is publicity (advertising) in a broad, judicious, methodical, consistent and constant manner. Are you going to take advantage of the oportunity or are you going to sit idly by and be content to let someone else do all the work—pay all the bills.

**L. E. Rodgers, Head of the Rodgers Engineering Co., of Chicago, a Man Who will Be Prominent in Connection with the Entertainment of the Army of Clay Men Who will Gather at the Big Chicago Convention Next Year.**

Opposed to our interests, are organizations which are ably manned and we hope to successfully compete with them. We must be equally well equipped in the matter of knowledge of what has so far been done; an intelligent appreciation of the possibilities that lie before us and the ability to wage a campaign which will be vigorous and enlightening.

All of you have realized this one startling fact, that of all the materials used in building, that brick alone, according to locality, have either remained stationary in price or taken a downward tendency. Contrary to this, all other materials have increased in price from ten to twenty-five per cent. Mr. Frothingham made the statement that the output of cement during the last ten years had increased 700 per cent; the output of brick has only increased 50 per cent.

What is the reason? Apparently, it is merely the lack of intelligent investigation and organization. Let us learn then from others, if we must, but let us learn at any cost.

Of the various lines of business that make for the commercial greatness of this nation, nearly all have their wondreful trade associations and a relationship one with the other that has and is, building up for them a paying and increasingly profitable business. In this list are included the vehicle, mantel, hardware, lumber, tile, oil, and cement interests.

Next to iron, steel and coal, burned clay products produce the largest tonnage, yet we as a class, have had no association that stood for watchfulness of our trade relations one with the other, with our railroad connections, with the dealer, and, lastly, with the consumer. Have you then been equal to the occasion, have you been true to yourselves and true to the trust reposed in you?

In addition to the question of publicity there are two equally live questions that might be given much consideration by us as an association. I refer to freight and express charges. In matters of freight rate joint action can accomplish good results. The independent oil people whose combined tonnage does not nearly approximate ours, have a traffic bureau and every rate of every kind on oil, from or to any point, is thoroughly checked and investigated; and if it shows the slightest discrimination prompt appeal is made either to the I. C. C. or the State Railroad Commissions.

This traffic bureau has saved its members hundreds of thousands of dollars. In the matter of classification, rates on brick, the correction of minimum weights, etc., the brick interests have never done anything in a progressive or joint movement.

In the matter of express charges, on samples and small lots, we have been discriminated against for the past ten years. Previous to 1902 there was a special commodity rate on samples which was withdrawn in that year and the rates put upon a first-class merchandise basis, certainly a ridiculous proposition. The speaker offered a resolution at the Cincinnati meeting of the N. B. M. A. in 1904 asking that a committee be appointed to take this matter under consideration with power to act; but nothing definite was ever done.

Have you ever figured this matter or stopped to realize what this raise in rates meant? The average overcharge in Ohio, with its forty yards or so alone, approximates the large sum of $5,000 to $7,000, and on that basis the brick manufacturers of this country have been held up by the express companies in the last ten years in the enormous sum of nearly one-half million dollars.

Apparently what has been everybody's business has been nobody's business. It has remained, therefore, for the Ohio Association of Face Brick Manufacturers to assert themselves, and it is conceded that by their efforts and good work, superintended by Mr. J. M. Adams, their president, the I. C. C. have declared, that for rate purposes, "A brick is a brick."

This same Ohio association believing that it was time to call a halt on the excessive express charges, several months ago at its own expense took up the fight against the express companies and through their attorney filed a complaint with the I. C. C. That case is now under consideration by the commission and final, oral argument will be heard in Washington February 28th.

Now, you may ask what have these to do with the B. B. A. We have, you may say, only to do with the selling, yet in that one thing is embraced both of these features; we first must create, by some means, a demand; we must attract the buyer by sample and thereby make the market which must be reached by freight.

If express charges were less, you would take more chances and ship more samples. If your freight charges are right and just and not discriminative you will more easily be able to meet the competition of lumber and cement and so, very vitally, have both of these questions to do with your success and prosperity.

The report of our secretary will give you an idea of what has been done by the B. B. A. during the past year. Suffice for me to say that the association has made considerable progress. Perhaps not all that it should have accomplished was done, but apparently all that could possibly have been done was accomplished. There was too much apathy and a hesitancy on the part of many to come forward with the proper financial assistance. On the basis of a contribution of only a fraction of a cent per thousand brick manufactured, our association would have had a working capital of over $50,000. With that sum tremendously good results could have been attained, but with the hardest kind of work it was only possible to secure the really insignificant sum of less than $11,000 with which to prosecute our work.

Familiar Faces of Convention Delegates.

Yet, despite that handicap, the directors cannot help but feel a certain pride in what the association has accomplished; but for most of that, if not the greater part of it all, we are indebted to the earnest and indefatigable efforts of our secretary, Mr. Fiske. He has, in one short year, despite all manner of drawbacks, hindrances, discouragements and lack of funds achieved a truly wonderful result in his campaign to bring building brick to the high place it deserves among the building materials of the world.

I have personal knowledge of the time he has spent in our work and from a close viewpoint, I am able to say that I believe him to be unselfish, of the strictest integrity, and possessed of a really, wonderfully fertile and creative ability which he has brought into use for the advancement of the work of this association and I am glad to be able to pay him this tribute.

In no small degree are we also indebted to the assistance of Mr. Arthur D. Rogers, of the Brick Builder, for help, encouragement, wholesome advice, and counsel throughout the year. Particularly was the competition of the "Four Thousand Dollar House" a complete success. The book which the association published under the title of "A Brick House of Moderate Cost" filled a demand and has received a merited vote of approval by manufacturers, architects and builders.

The issue of the "Bulletin" giving a list of those who answered the advertisements which we placed in the magazines, has proven of immeasureable good to many who made use of the information therein made public. In all about 2,000 answers were received.

Our campaign of publicity is fundamental. Through it will be made possible, first, the enlightenment of the public on a question so misunderstood by them and distorted by others, for a fell purpose, that this plan is necessary. Secondly, the promulgation to the architect, owner, and builder of the vital facts of comparative costs of brick as against other material and third, to bring home to the owner, the manifold reasons favorable to the use of your material for his building, be it a palatial residence or a modest cottage, and you and I know that such knowledge will be a blessing to him and his.

All of this can be done easily, and though it requires the expenditure of time, energy and money, the result will be more than commensurate with the outlay. It is not enough that some of you are working full capacity, there should be such a demand that all yards should be working to the same end, and when that time comes, and come it will speedily, if we get together, the question will not be, as unfortunately it is today, at what minimum figure can you move your brick, but instead you can demand and secure a fair compensation for your time, your machinery and your quickly vanishing clayfields. What you want is the development of a greater market that will consume your manufactured product. Increase the demand, the supply will take care of itself.

While there are many things for us to do, there are also some pitfalls of which we must beware. We must have no ax to grind, no prejudices to stunt our judgment and no special interests to serve. We must be free from all and be contaminated by none of these. We must be free agents and for the one purpose of making this building brick association of sterling worth and character, and its plan of action must be skilfully and intelligently directed.

The closer we can get to each other in doing business, the more satisfactorily can we do business. Everyone is entitled to a fair market price for anything he has to sell and that only can be secured when there is developed to the highest possible degree a market for his product and for that purpose this organization stands.

Of all the things of which we must beware, both as manufacturers and as selling agents, the worst is ruinous competition. The old adage that "competition is the life of trade" is, I believe, becoming obsolete in its strict application, and nowa-days this saying apparently applies to the buyer only; not that competition has not its redeeming features, but let those features be to see how good we can make our brick, how much better and attractive, and how much more useful and necessary, and not how cheap or underpriced. Then, and then only, will there be that pleasure in doing business that greater percentage of profit on your investment, that others enjoy, and that is what the brick business is longing for.

And now, in conclusion, let me say that I sincerely appreciate the task that is before me as your presiding officer. I shall endeavor, with fairness and justice to all, to so wield the gavel as to merit your approval, and in return let me ask your heartiest co-operation to the end that we may move along with the business of this association with swiftness and dispatch.

I am satisfied that all that we will do during this year's meeting will be fruitful of much good to the Building Brick Fraternity of America and that wise counsel, harmony and good fellowship will be the prevailing features of all our sessions.

You have a great and important work before you; you are charged with the laying of the foundation for a work which will be a success or a failure, according to the judgment which you use in what you do now. If you build wisely, other men who come after you will praise your work. If you build with a congested brain and a wrinkled heart, with an eye single only to immediate results and your own selfish interests and not in a broad magnanimous spirit of fellowship, with the concession of the right of others to do and prosper, your labors will be as naught.

The report of the auditor, William Dillon, certified public accountant of New York, was listened to with interest. It was a detailed statement of the affairs of the association and proved the association to be upon an excellent basis.

## The Comparative Cost of a House of Brick of Moderate Size When Constructed of Wood, Brick, Cement or Hollow Block. . .

In presenting his report, J. Parker B. Fiske, of New York, said:

There can be little doubt, even in the mind of the casual observer, that brick is a most desirable material with which to build a house.

The public is gradually coming to understand the enormous loss from fire, the excessive repairs, the rapid depreciation and the discomfort in both summer and winter arising from the use of frame construction, and to appreciate the fact that the house of brick is not only fire-proof, but that it requires no painting, that it does not decay or depreciate and that, of all types of construction, it is the most beautiful.

How is it then, that America still continues to build her houses largely of wood, while the older countries of Europe have long ago abandoned this type of construction?

The answer may be found in conversation with almost any intelligent man or woman,—"The first cost of the brick house is prohibitive."

It is singular that the brickmaker has been so ready to accept this answer from the public as final and conclusive, instead of becoming a master of the question himself and in turn, teaching the public the real facts so vital to his business.

The writer must admit that, in common with other brickmakers, he has made until recently no great study of this question, accepting the common verdict that the house of brick, while most desirable and most satisfactory in the long run, is expensive in its first cost.

Perhaps it is natural that we who were born and have grown up in a land of wooden houses should take this type of construction for granted.

America, however, is the land of progress, the land of new inventions, the land whose people enjoy to the largest extent the benefits of human ingenuity and skill.

It is high time that America found out the truth of this important matter.

But every man in our busy modern world is occupied with his own affairs; the banker, the manufacturer or the merchant has no time and little inclination to investigate all the ramifications of a complicated problem like this, which comes to him at most once or twice in a lifetime. He will build his house of the material which has impressed him, by observation and superficial inquiry, as the best.

Some one whose interest is vitally at stake, whose very business success depends upon the increased prestige of brick, must undertake to determine the final facts in the case and to teach them to the public.

This man is the brickmaker himself—for the elimination of wood and the substitution therefore of brick would mean an enormous increase in his business with a corresponding increase of his profits.

Believing that no question is to-day of greater importance to the American brickmaker, than a thorough knowledge of the comparative cost of the house of brick and one of wood and cement. The writer has undertaken to determine something definite regarding this matter and now offers the results of his investigations for your consideration.

Before entering into a detailed discussion, it may be well to consider for a moment what is meant by the cost of a house.

Building construction has never been reduced to an exact science, and its cost can never be foretold with the accuracy of a mathematical problem.

No two contractors, even of equal skill and experience, will figure exactly the same cost on a given set of plans and specifications. Elements of chance must be considered such as fluctuations in the market price of material and labor, weather conditions and unexpected difficulties in construction. Moreover, each man's figure will be influenced to some extent by the measure of his desire to secure the contract in question; in fact it is doubtful if the same contractor would bid exactly the same on different occasions even for precisely the same structure.

Moreover, if these variations are encountered in obtaining the cost of a given building in a given place, still wider differences will arise in obtaining bids for different localities where the price of material and conditions of labor are different.

For this reason a certain amount of discrepancy between different authorities must be accepted as inevitable and must not be allowed to throw suspicion on the figures.

With this explanation, which is perhaps unnecessary before this body of men who have been more or less associated with building operations for many years, let us proceed to the consideration of a specific case.

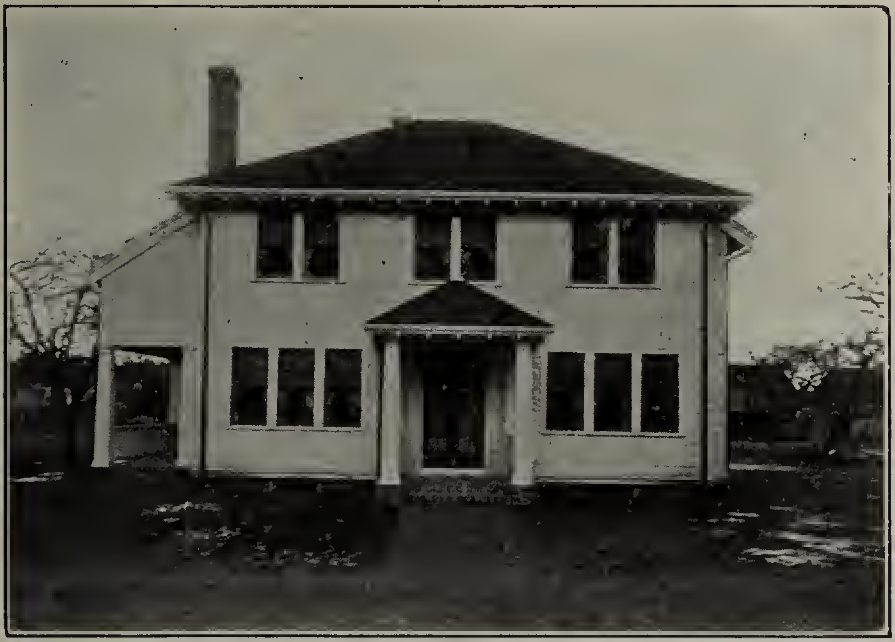


Fig. 1.

It was decided to procure plans and specifications of a given house and to ascertain by actual bids from a number of reliable contractors its difference in cost when constructed of frame, brick, cement or hollow block.

For this purpose a small modern eight room house of good design and excellent arrangement was chosen, the original having been actually built at Beverly Farms, Mass., under the direction of Thorndyke & Kiessling, architects.

Fig. 1, shows front elevation; Fig. 2, shows side elevation; Fig. 3, shows interior view; Fig. 4, shows first floor plan; Fig. 5, shows second floor plan.

This house is typical in size, arrangement and cost of thousands of houses which are being erected throughout the East.

Mr. Kiessling was commissioned to prepare the plans and specifications necessary for obtaining bids for this house when built with the following types of exterior wall construction, all other details being common to all types:

### Description of Various Types of Outer-Wall Construction.

Type No. 1—Frame covered with boards and finished with clapboards over building paper; inside surface furred, lathed and plastered.

Type No. 2—Frame covered with boards and finished with shingles over building paper; inside surface furred, lathed and plastered.

Type No. 3—A 10-inch brick wall, i. e., two 4-inch walls tied together with metal ties and separated by a 2-inch air space; inside surface plastered directly on the brickwork.

Type No. 4—A 12-inch solid brick wall, inside surface furred, lathed and plastered.

Type No. 5—Eight-inch hollow terra cotta blocks, stuccoed on the outside and plastered directly on the inside.

Type No. 6—Six-inch hollow terra cotta blocks, finished with a 4-inch brick veneer on the outside and plastered directly on the inside.

Type No. 7—Frame covered with boards and building paper, furred and covered with stucco on Clinton wire cloth; inside surface furred, lathed and plastered.

Type No. 8—Frame covered with boards (building paper omitted) and finished with a 4-inch brick veneer on the outside; inside surface furred, lathed and plastered.

Type No. 9—Frame finished on the outside with a 4-inch brick veneer tied directly to the studding (boarding omitted); inside surface furred, lathed and plastered.

A separate drawing showing the details of each type of outer wall construction was prepared and each was accompanied by a set of complete specifications for the entire house.

Everything about the house, except the outer wall construction, was identical in all nine types and may be briefly covered by the following tables:

### Details Common to All Types.

A: Foundations—Local stone.
B: Cellar Floor—Finished with 2-inch concrete of Portland cement.
C: Chimney—Faced with brick costing $17.50 per M.
D: Fireplaces—Faced with brick costing $17.50 per M.
E: Plastering—First-class "two coat" work.
F: Exterior Finish—Cypress.
G: Blinds—White pine.
H: Screens—Copper bronze on white pine frames.
I: Window Frames—Hard pine.
J: Floors—Double floors throughout with paper between, except in unfinished attic; Georgia pine upper floors; main hall on first floor of oak.
K: Inside Finish—North Carolina pine.
L: Doors—Washington cedar.
M: Hardware—Bronze finish of ordinary type, costing $60.00 for the job.
N: Wood Mantels—$45.00 each.
O: Conductors—Copper.
P: Flashing—Tin.
Q: Electric Fixtures—Costing $80.00.
R: Hot Water Heating—Costing $250.00 complete.
S: Wiring—Costing $68.00.
T: Plumbing—Costing $370.00.
U: Painting—Exterior and interior; clapboard house $225.00; other houses $130.00.
V: Glazing—Double thick German glass.

The following local contractors of well known reputation and experience were then selected:

W. F. Kearns & Co., Boston; McDonald & Joslin Co., Boston; P. H. Jackson, Brockton; R. L. Donaldson, Lincoln; J. T. Wilson & Son, Nahant.

Each was fully advised of the object of this investigation and was asked if he were willing to undertake the preparation of figures which should truthfully set forth, to the best of his ability, the cost (including his profit) of a house to be built within ten miles of Boston according to these plans and specifications. Each was told that we desired to know the exact truth; if, as alleged by some contractors, the cost of a brick house is 25 to 30 per cent more than one of wood, then we wished to know it, as nothing could be gained by an investigation of this kind which was biased or influenced by any favoritism for one type of construction over another.

Each contractor entered into the spirit of the investigation heartily and agreed to figure out the cost fairly, to the best of his ability.

The following are the bids submitted by the five contractors in question:

### Comparative Bids.

| Type No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Description | Clapboard | Shingle | 10-inch Brick Wall, Hollow | 12-inch Brick Wall, Solid | Stucco on Hollow Block | Brick Veneer on Hollow Block | Stucco on Frame | Brick Veneer on Boarding | Brick Veneer on Studding |
| Bid No. 1.. | $6732 | | $7572 | | $7416 | $7777 | $6857 | $7130 | $7080 |
| Bid No. 2.. | 6235 | 6370 | 6736 | 7105 | 6491 | 6762 | 6410 | 6746 | 6664 |
| Bid No. 3.. | 6692 | 6786 | 7118 | 7418 | 7179 | 7238 | 6847 | 6970 | 6895 |
| Bid No. 4.. | 6690 | | 7496 | 7801 | 7202 | 7648 | 7000 | 7496 | 7420 |
| Bid No. 5.. | 7450 | 7450 | 7940 | 8240 | 7650 | 7990 | 7650 | 7790 | 7710 |
| Av'ge of Bids | 6759 | 6868 | 7372 | 7641 | 7187 | 7483 | 6952 | 7226 | 7153 |

Taking a general average we have the following:

### Comparative Bids—Average Figures.

| Type | Description | Average Bid | Excess Over Clapboards | Percentage Excess Over Clapboards |
|---|---|---|---|---|
| No. 1 | Clapboard | $6759.95 | | |
| No. 2 | Shingle | 6868.80 | $108.85 | 1.6 |
| No. 3 | 10-inch Brick Wall, Hollow | 7372.48 | 612.53 | 9.1 |
| No. 4 | 12-inch Brick Wall, Solid | 7641.00 | 881.05 | 13.0 |
| No. 5 | Stucco on Hollow Block | 7187.65 | 427.70 | 6.3 |
| No. 6 | Brick Veneer on Hollow Block | 7483.16 | 723.21 | 10.7 |
| No. 7 | Stucco on Frame | 6952.90 | 192.95 | 2.9 |
| No. 8 | Brick Veneer on Boarding | 7226.44 | 466.49 | 6.9 |
| No. 9 | Brick Veneer on Studding | 7153.98 | 394.03 | 5.8 |

The writer must frankly admit these figures of relative cost were something of a pleasant surprise to him, being produced as they were under conditions of absolute fairness by totally disinterested and unprejudiced experts.

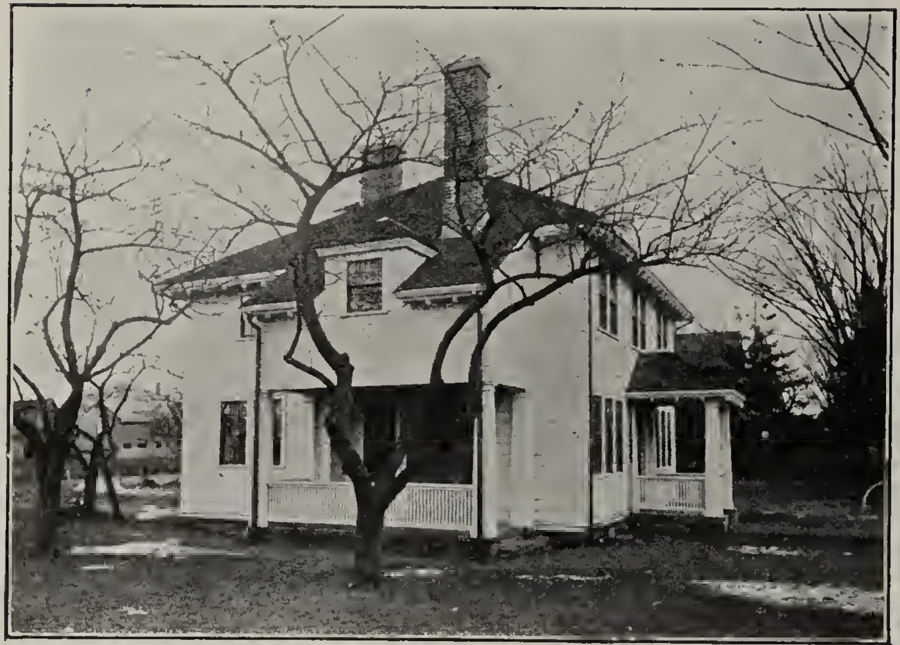
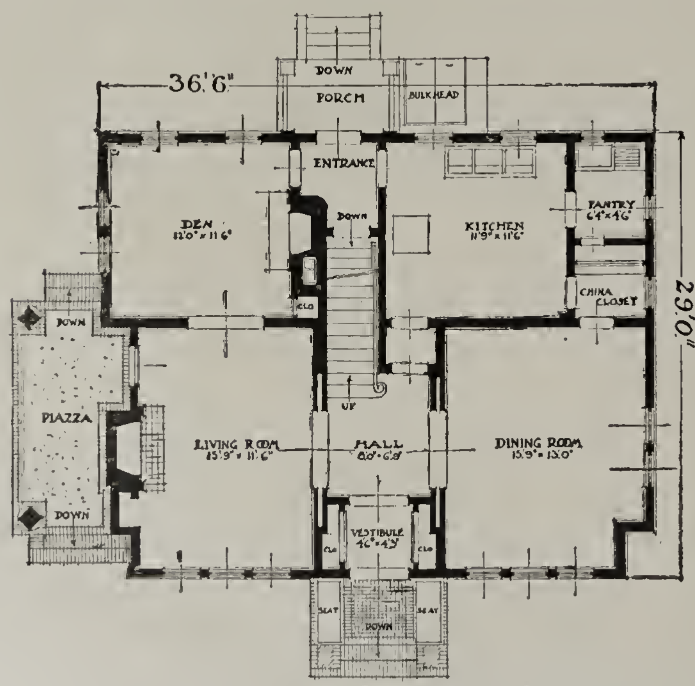


Fig. 2.

But it may be argued that while these comparative costs are true for Boston, they are not true for other portions of the country. We will accept the challenge.

The writer believes that they are not unduly favorable to brick, in fact, they are not as favorable to brick as figures which could be obtained under similar conditions in many cities of the Middle States. We have already been advised in a general way from other parts of the country of figures even more favorable to brick.



FIRST FLOOR PLAN
HOUSE at BEVERLY FARMS, MASS. THORNDIKE & KIESSLING, ARCHTS.
Fig. 4

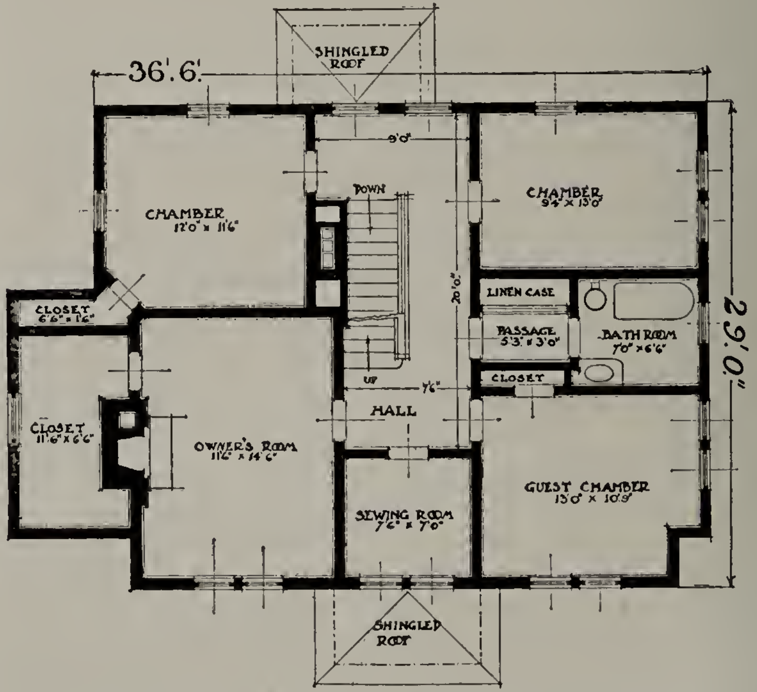
If a shadow of a doubt remains within your mind that these figures cannot win the entire confidence of the country, let us immediately appropriate a sufficient sum of money to engage the services of a competent expert. Let him take these plans and specifications (or other plans and specifications if such are considered more desirable) and let him visit at least a dozen cities in the United States during the next six months.

Let him be an architect of ability and skill who can secure the co-operation of local architects, in the conduct of an investigation by at least three competent builders in each city, as to the comparative costs of the house in question.

Let the results of this investigation be properly collated, analyzed and sifted to a final conclusion, representing average conditions and let these facts be set forth in attractive literature to carry conviction to its reader.

Fig. 3.

Let The Building Brick Association of America advertise this literature in the popular magazines of the country. Let every individual brickmaker advertise in its own local newspaper, until it shall be brought to the attention of every prospective builder in the land. The people will respond, for they are hungry for the truth.



SECOND FLOOR PLAN
HOUSE at BEVERLY FARMS, MASS. THORNDIKE & KIESSLING, ARCHTS.
Fig. 5

Inquiries for our literature will pour in by the thousands from every state in the Union. The experience of this Association with its little advertising campaign last year has already proved it.

We can flood the country with this literature, carrying its message not only of beauty and practical advantages but of low cost and real economy.

In order to determine with some accuracy, at least, the volume of wooden house construction in this country with its consequent loss of business to the brickmaker, the writer has solicited the good office of the F. W. Dodge Co., the well known authorities and distributors of building reports and statistics.

An analysis has been made by this company of the contracts actually awarded for the building of wooden houses in the New England States; (i. e., Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut;) and the fact has been established that the number of single and double houses erected of wood in this limited territory in the year 1910 was not less than 3,250, with a total valuation of over $19,000,000, and average cost therefore of about $5,850. This average is made up of houses, which range in cost from $2,500 to $50,000 each, about one-eight of the houses costing $10,000 or more.

Veteran Clay Men at the Louisville Convention.

These figures do not include hotels, apartment houses, stables, garages or other out-buildings connected with dwellings, but include only isolated houses, either single or double.

A very conservative estimate of the quantity of face brick required for a house of the above average size would be 15M, not including brick for chimneys, fireplaces, porches or veranda floors; the corresponding number of common brick required for 12 in. outer wall construction only would be about 30M.

From these figures it may easily be calculated that the New England house, if built of brick, would add to the business of the brickmaker about 50,000,000 face brick per year and about 100,000,000 common brick.

We cannot, of course, present the common brickmaker with such a magnificent dream, but the substitution of brick in the building of the outer walls of wooden houses in the year 1910 would have added to your business 2,070,000,000 brick, while your entire production was less than 10,000,000,000. In other words, the increase in your business would have been over 20 per cent.

The introduction of brick for house building would soon lead inevitably to the elimination of wood in all apartment houses, stores, and in many public buildings in small communities where it is still the prevalent building material. It is impossible to estimate in actual figures what the final elimination of wood as a structural material would mean to the brick business, but it is no foolish dream to assume, that under these conditions, brick manufacturing would be on quite a different plane from that which it occupies today.

The march of progress is inevitable; the world moves on to better things. Changes which have resulted from natural causes in England and Continental Europe will, in time, take place in America. As wood becomes more scarce our people will look about for a cheaper and a better material; in fact, they are doing so already.

What part are you going to take in the revolution of building materials? Are you going to step forward and assume the leadership in this great movement?

Are you big enough and broad enough to grasp the opportunity whcih is now offered to lead it rapidly and surely to its final goal, to hasten the time by many years when the wooden house shall disappear from the face of the land and brick shall take its place?

Or, are you content to follow at the rear of the procession, leaving the people to find out for themselves, by fire, by decay and by waste, in a long tedious wandering through the wilderness of ignorance that wood is not a suitable material for their homes and that brick, after all, is the best?

You cannot, of course, by any stretch of imagination or by any activity, however, vigorous, entirely displace wood with brick, but you can by the exercise of ordinary business acumen and with the expenditure of an almost insignificant sum of money, hasten the introduction of brick to the extent of many millions per year, with the sure knowledge and the great satisfaction, that while you are increasing your own business and profits you are really doing a noble work, for you are adding to the prosperity, wealth and comfort of your fellow-countrymen.

C. H. Bray, Helena, Mont., and Alfred Yates, Shawmut (Pa.). Vit. Pav. Brick. Works.

Mr. Brickmaker, what say you?

### The New Officials.

The by-laws were amended to include 27 members instead of 21, as has prevailed in the past. The additions are W. E. Dunwoody, Macon, Ga.; H. J. Jova, Roseton, N. Y.; E. L. Ives, Middletown, Ky.; Walter M. Hodges, Bradford, Pa.; H. C. Kleymeyer, Evansville, Ind., and E. B. Rogers.

The directors who were re-elected for two years follow: F. W. Butterworth, L. G. Kilbourne, S. C. Martin, T. C. Moulding, John W. Sibley, W. Siwart Smit and R. E. Sunderland.

The complete list of the board of directors which include the six members elected this year, follows : J. M. Adams, E. J. Burke, F. W. Butterworth, J. Howard Chambers, R. G. Eisenhart, E. A. Fisher, Parker Fiske, S. M. Gould, William Hanley, Chas. J. Henderson, L. G. Kilbourne, S. C. Martin, T. C. Moulding, R. L. Queisser, Arthur D. Rogers, John W. Sibley, W. Siwart Smit, Ralph Simpkins, W. J. Snyder, R. E. Sunderland, C. B. Ver Nooy.

The nominating committee was composed of Messrs. Rogers, Butterworth and Moulding.

There was an old fashioned revival meeting following the address of Mr. Chambers, of Philadelphia, who asked the question, "What have been the results from advertising building brick?" Mr. Chambers asked if there was one member in the room who had received direct results from such publicity and instantly there was nearly a dozen manufacturers on their feet who wanted to tell of the good received from the work of the association.

A most salient point was brought out by Mr. Fisk along this line, when he declared that when the funds of the advertising appropriation had become low and publicity was not being worked as strong as previously, the number of inquiries for literature, bulletins and even orders had dropped to the low point of only on an average of 18 inquiries per week. Then one small "ad" was inserted in a well-known publication, with the result that inquiries made the remarkable leap to 205 per week.

The new officers of the association follow: President, R. L. Queisser, Cleveland, O.; vice-president, Ralph Simpkins, of the Hydraulic Brick Co., St. Louis, Mo.; secretary-treasurer, J. Parker B. Fiske, New York; executive committee, Frank Butterworth, Danville, Ill.; William Hanley, Bradford, Pa., and the officers of the association; membership committee, J. N. Adams, of Ironclay Brick Co.; E. J. Burke, Burke Brick Co., Rochester, N. Y.; R. E. Sunderland, Sunderland Bros. Co., Omaha, Neb.

### Paper by W. E. Dunwoody, of Macon, Ga.

Mr. President and Gentlemen of the Association:

I once heard a preacher say that he spoke by inheritance, for the reasons that his mother was a "woman" and his father a preacher. But he also said that preachers sometimes talked too much and sometimes became mixed in what they were trying to say. Which reminds me of a funeral I once attended which was being conducted by an eminent divine. It was the custom at the time and in this particular neighborhood, at a certain part of the services, to invite the friends of the deceased to "view the remains." When this time arrived, in his embarrassment, caused by no one knows what, instead of inviting the friends of the deceased to view the remains he said: "Will the friends of the deceased please pass around the 'bier.'" (beer), and that happened in a "dry" state. Therefore I will confine myself strictly to my paper, which I have tried to make a succinct statement of some of the arguments I use in my endeavor to increase the demand for brick by "creating a demand" by putting before the people the advantages of brick veneered construction, as compared with ordinary frame buildings.

We are not salesmen who simply supply the wants of those who seek us. We must create business by psychological effects, produced by forces and suggestions set in motion by our own efforts. Suggestion rules the world.

The consideration of the subject of "The Brick Veneered House, Its Cheapness and Desirability," will of course be more from the standpoint of the salesman, in his efforts to convince the public that "brick is the best building material," than from the standpoint of the builder. My statement will be none the less true, though we will not consider the technical points in the construction of the edifice, but rather the results to be obtained and the advantages and comforts that assure to the owner. My interest, of course, is caused primarily by a greater desire to increase the use of brick.

I contend that a "brick veneered house" is better in every way than any other, except a solid brick house, for many reasons, some of which are as follows:

The "brick veneered house" is warmer in winter and cooler in summer. It can be heated for less cost of fuel. The fire insurance rate is less. The painting is almost nothing. The owner or tenant is free from anxiety on account of a possibility of fire. There is no bother about a possibility of frozen water pipes, making it necessary to scratch in the mud and shiver while the wind blows out the candle as you look for a place to cut the water off. The man in the "brick veneered house" sleeps and lets the wind howl and the thermometer drop. He knows he is "freeze proof." The plastering does not crack nearly as much in a "brick veneered house" as in a frame. The cost of repairs is very much less. It is possible to keep a "brick veneered house" at a uniform temperature from garret to cellar on account of the freedom from drafts, which means increased healthfulness. It is also a fact that while a contractor may sometimes, in a frame house, use some inferior lumber, covering it with paint and thus prevents your finding it out, it is a very easy matter for anyone to know whether brick are first class or not, and so far as durability is concerned, he can practically leave that to the manufacturer, for the manufacturer cannot afford to make a poor brick, as it would cost him, in most instances, as much as a good one and the breakage would ruin him. Finally, it costs you only about 5 per cent more on the first cost. We could take up each of these reasons and discuss them at length, but they are so obviously true that it would be a waste of time.

To these arguments the prospective builder sometimes replies, "but I cannot afford the additional cost." Well, I say, "My friend, don't spoil a happiness which you are promising yourself, when you get to that long-looked-for, and constantly receding place, when you can afford it, by waiting too long and making too many preparations for it. 'We brought nothing into this world and it is certain we can carry nothing out.'"

But really a brick veneered house will help one's credit, as it gives the appearance of prosperity, looks substantial, and gives the impression that the owner is succeeding, and everybody, from the banker down, wants to help the successful man. "Them that has, gets."

When building a home, one should always build with the idea that he may some time want to sell, and we all know that a brick building improves with age, while a frame house begins to deteriorate as soon as the last nail is driven and the last stroke of the paint brush is made. Brick are more durable than iron, as they do not rust.

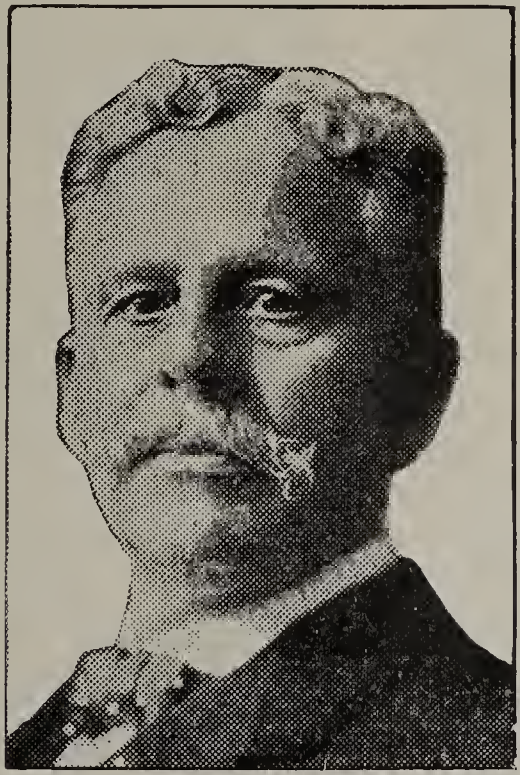
But if all this be true, why do we have to persuade any one to build a brick house? One potent reason is the fact that many contractors and architects really do not know what the difference is in the cost between a brick veneered house and a frame house, and this fact is seriously retarding the sale of brick in my section. Oft times the minute you suggest a brick veneered house, the prospective builder says: "I cannot afford it"; my contractor or my architect says it will cost me 25 to 50 per cent more, some say even 100 per cent, to build a brick veneered house than to use weather-boarding, and with that idea firmly planted in his mind you find it hard to get him to give you a respectful hearing. We are to blame for not pressing brick as the building material. As soon as I found that this situation existed, I began an investigation by going to some of our leading architects and contractors. In answer to my question, as to what would be the difference between two houses to be constructed exactly alike, with the exception that one should be veneered with brick, costing $15 per M., while the other should be weather-boarded with No. 1 weather-boarding, I received answers ranging from 5 to 100 per cent in favor of weather-boarding. Such an enormous difference of opinions from men, each of whom should have known, made me realize where some of my difficulties in interesting my customers in brick veneered houses had their origin.

In January, 1910, I let a contract for a brick veneered house, in which I specified face brick made by one of my companies, and figured in the cost of the house at $15 per M. Thus I found from actual experience that the brick veneered house only cost about 5 per cent more than the frame house. This figure is accurate and can be relied upon. Of course the frame house could be cheapened by taking out some of the foundations, that is, by making them lighter and by using an inferior grade of lumber, but that would make an inferior house and would not be a fair comparison. The man who wishes to build as cheap a house as possible is not interested in this discussion.

The first cost, which is of course important, is not as important as the cost of up-keep. No man buys a brick machine on account of cheapness only; he considers carefully what he is getting for his money, and the lasting

L. W. Penfield, Pres. National Clay Mch. Assn.

W. N. Durbin, Sec. Natl. Clay Mch. Assn.


W. H. Rogers, 2nd Vice-President.

Ex-Pres. Lemon Parker, St. Louis.

qualities of the machine, as well as what it cost to keep it in repair.

Since building my own brick veneered house I have sold a great many face brick for brick veneered houses, and the booklets published by the B. B. A. have been a great help to me, as a source of reliable information, and as a means of interesting and convincing prospective customers. Any one contemplating building will appreciate them and will read every word carefully.

Now, we all know that we cannot get out of our own minds what we have not put into them, and it, therefore, behooves us to inform ourselves, if we are to convince others. The difference in men is not so much in native ability as it is in the difference in ability to reach a definite decision. A proposition half right can be made to succeed by backing your judgments, making your decision, burning the bridges behind you and pushing your plans to completion, having forgotten that you have ever had but one idea on the subject.

As I said, my remarks are from the standpoint of a salesman interested in the subject, because it offers a means of increasing his sales.

Now a salesman seeks first the difficulties in marketing his products and the means of overcoming them. My chief local trouble is, lack of accurate information on the part of our contractors and architects who, on account of this, will often discourage the use of "brick veneering." The other local trouble is, that many people have visions of immense increase in cost when you mention "face brick" when, as a matter of fact, if they will figure the cost, in most cases, they will be very much surprised and will often decide to use brick. Now both these difficulties can be overcome by informing yourself and presenting the facts, in a way that will impress your customers that you know what you are talking about.

If you will pardon a personal allusion I want to say that nine years ago I became actively engaged in the brick business; after a lapse of eight years, during which time I was cashier of a bank, having had three years' experience in brick manufacturing, previous to my banking experience. The first year I sold 4,000,000 brick; last year I sold and shipped over 70,000,000 brick and it was not an especially good year, either. That is nothing so remarkable, you say, but let's see. In my office I had one bookkeeper, one stenographer and myself, and no one on the road. But I advertised—it pays.

Before I close this paper I wish again to digress and call your attention to another way in which you can increase your business, and that is by showing the economy and advantage that can be derived in "veneering" old frame houses, or as Suburban Life puts it, "overcoating an old house."

In every frame building there are hundreds of joints; there are spaces innumerable where wind and cold can get through. These facts cause conditions to rise affecting the health of your family and also increases the amount of your coal bills. A frame house that has been built for years opens up more or less in its hundreds of points; the weather-boarding shrinks slightly away from the water table; the window and door frames pull apart; the cornices give a little and the result is, many places are open where wind can blow through. All this can be cured by "brick veneering." Your house will then become and remain comfortable, and endure as long as the "everlasting hills."

Now, gentlemen, every business man here can increase his business enormously by making up his mind right here and now, to become a member of the B. B. A., and by co-operating with its officers in every way possible. We must convince the people that brick is the best building material and the only effective way to do it, at least cost, is by having an up-to-date publicity department managed by men of ability and experience; but, you say, you cannot afford such a department. No, you could not if you had to pay the salaries of such men yourselves. That is just where the B. B. A. comes in.

It is your publicity department and it is mine. if we are willing to contribute our "mite" to carry on its work. Sales resulting from one bulletin I received from the B. B. A. paid my dues for last year.

Advertising costs, but advertising pays, and where the cost is borne by a number of us, no one feels the expense, but all feel the benefit. Now let me give you a little personal experience, if you will again pardon me: Last year while I was at the Pittsburg convention, my fellow citizens of Macon, Ga., elected me president of the Georgia State Fair Association. When I took hold of the association we had about $8,000 in cash with which to "pull off our fair." Now how much of the $8,000 do you suppose I spent in advertising? Practically all of it. Did I come out in debt? No, sir. Our people and a number of your people said that we had one of the finest state agricultural fairs they had ever seen.

We paid all our premiums, all of our expenses, and have now ample funds to conduct this year's fair, which will be held early in October, and to which you are all invited.

We cannot sell gold dollars at ninety cents if the people do not know we have them to sell, and you cannot let them know except by advertising. Talk brick, advertise brick, keep brick constantly before the people, as the building material, and your business will increase beyond your fondest hopes or expectations. I speak from experience. Do you not believe it? If not you will, some day not far distant, find yourself in the place once occupied by an old man living in one of the rural districts of Georgia, who had never seen a steam engine. He went with his son one day to Macon, Ga. (which, by the way, will be the next capital of Georgia), to see the sights. When he stopped by the side of the engine and saw that enormous aggregation of steel and iron towering above him, with the immense tender loaded down with coal attached, and, too, that long string of ponderous Pullman cars, he was disappointed, and said to his son: "Why, boy! they can never start that thing." But the boy new better, and in a few minutes the conductor said, "All Aboard." The passengers, who had been standing on the platform, awaiting this last call, jumped aboard. The fireman began ringing his bell. The engineer set his reverse lever, opened his throttle and gave her the power. The old man saw the wheels begin to turn, the engine give forth columns of smoke and steam, and before he could realize it, the engine, with its loaded cars, had glided away like a thing of life, in all the beauty and grandeur of a locomotive in motion. As it rounded the curve and was lost from sight, the old man said: "Boy, they will never be able to stop her."

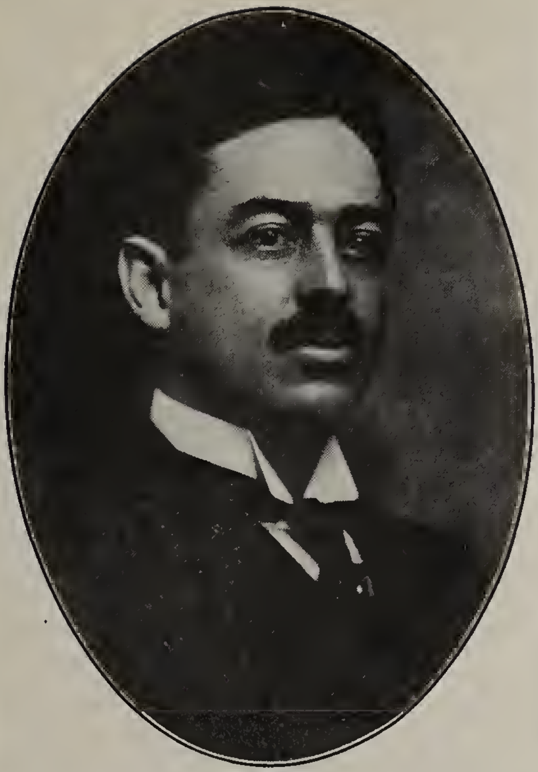
## Winning the Public for Brick.

### By Jno. Andres.

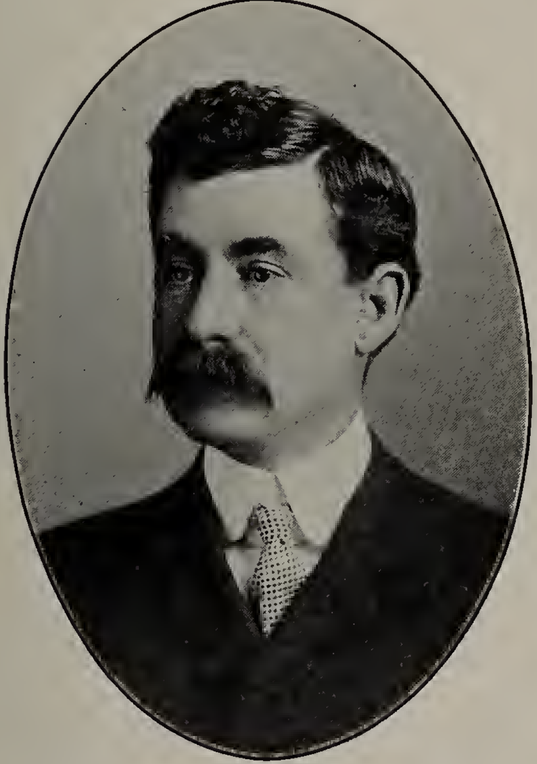
The task set for itself by this association, as I see it, is "Winning the Public for Brick."

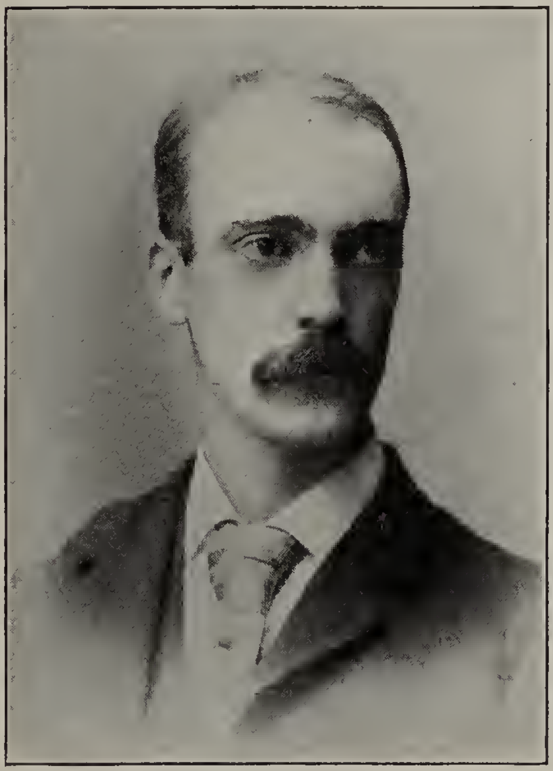
In the other departments of the industry it is an established rule to learn and profit by the experience of others. Since this custom is faithfully observed in the other branches of our work, surely it ought not to be disregarded in the sales department. The time has arrived in the history of the manufacturers of brick, when they

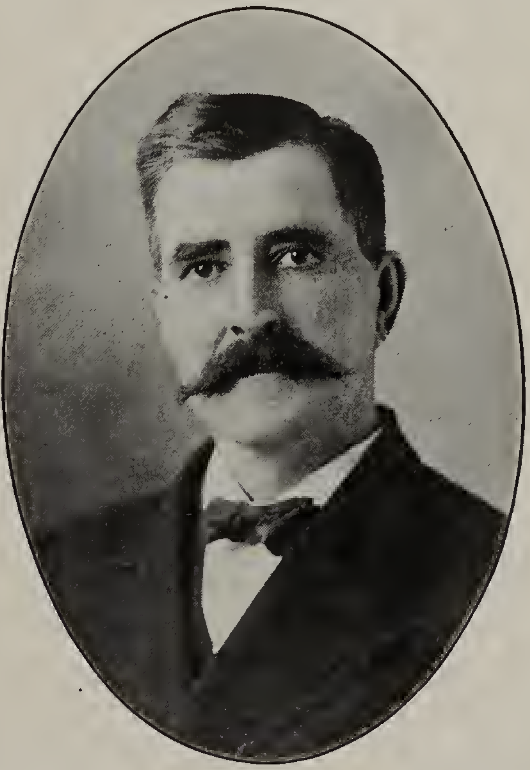
L. S. Kendrick, Saginaw, Mich.


Paul Beer, Barber Asphalt Co., Des Moines, Ia.

R. E. Sunderland, Sunderland Face Bk. Co., Omaha, Neb.

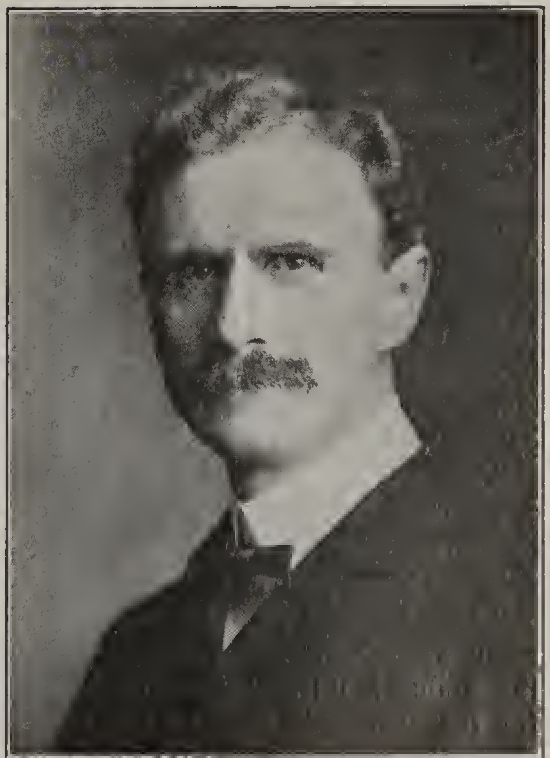

R. D. Lindsay, Denver, Colo.


Geo. Goulding, Sec. Streator (Ill.) Pav. Bk. Co.


W. J. Craney, Craney & Spaulding Bk. Co., Kenosha, Wis.

C. C. Murray, Sec. of Reynoldsville (Pa). Bk. & T. Co.

Anton Vogt, Fort Worth, Tex.


John Andres, Sec. & Treas. Standard Bk. Mfg. Co., Evansville, Ind.

must break away from their over-confidence in relying upon brick to sell itself upon its merits alone; when they must bravely meet the situation at it is, learn the secrets of those who are forging to the front in other lines; employ their methods, and go into the battle for supremacy, with the very best weapons known to commerce.

Our members were not slow to avail themselves of the help of the electric motor, the gas producer, the natural gas, the oil fire, waste heat, etc., and yet it is remarkable that they are the last people on earth to realize the value of "hot air" in selling their product.

For our first lesson we need go no farther than the cement people. They have flooded the country with their literature which alone explains the phenomenal growth of their business. Mr. A. W. Greene, president of the National Biscuit Company said recently: "Business can no more be carried on without advertising than it can without money." The man who has an article for sale must tell the public in an intimate way what it is good for, how it is better than similar articles, what is gained by using it and what is lost by using it. And this man must be told a thousand times." Conditions in Evansville have always been such as compelled us to make a hard fight to secure for brick the place to which it is entitled. Evansville has always been a great wood-working center. Its location on the Ohio river, near the mouth of Green river, made it the natural harbor for the vast timber territory extending from the Ohio river to Tennessee. Besides 25 large furniture factories, there are 30 lumber dealers, sawmills and planing mills, some of whom are heavy advertisers, giving employment to thousands of men, showing the opposition we have to encounter. One of the officers of the local Lumberman's Club stated at the annual meeting of the Evansville Business Association recently that the members of their club represented an investment of $3,000,000; that they sold in Evansville in 1910, 155,000,000 feet of lumber and shipped out 500,000,000 feet.

When we entered the field about 14 years ago and up to within the last few years, some of the largest factory buildings were built of frame with common brick selling as low as $4.25 per M. This shows again that low prices do not create business. Prosperous firms with much machinery like the Globe Furniture Co., The United States Furniture Co., The Standard Chair Co., the Evansville Mirror & Beveling Co., The M. A. Hunt Co. and others built immense frame buildings to house their men and machinery.

Perhaps the largest of all are the buildings of the Evansville Ice & Storage Co., which occupies a whole square near the heart of the city. This property is even inside the fire limits and the last few frame additions were put up contrary to law. During this time and up to a time within the last two years the finest residences in town were built of frame. Bank presidents and men prominent in business and professional circles, were building fine residences of frame. Washington Ave., one of our best residence streets, for a mile and a half on both sides of the street is built almost solidly with frame houses. Two or three brick houses a year was our limit, for the whole city.

We saw that our only hope was to bring about a change in public sentiment and could think of no better way than to start a campaign of advertising and education in the daily papers. Throughout the building season, the four daily papers of Evansville carry a "Builders Page" once a week upon which are assembled all items of interest in the building line. By taking 12-in. double column space for the season in each of the papers for display ads. we were given the privilege of the news columns to publish anything of interest to the public, and we have taken advantage of this privilege to its fullest limit. We gave local publicity to all of the articles appearing in the Clayworker and Brick and Clay Record, favorable to brick houses, and after exhausting our own resources we were greatly relieved to have your valuable association come to our aid with its literature which filled a long felt want. Since we have these booklets and have been able to supply ourselves with new ideas, and all kinds of good arguments clothed in convincing and attractive language, we have had no trouble in keeping the merits of brick constantly before the public. A few weeks ago the Courier, our leading daily announced that it would devote a page every Sunday to "boost" Evansville and that it had invited prominent business men to write articles showing why people should be loyal to their home town, one article to appear each Sunday. They invited me to write, my article appearing third in the series, and naturally I took advantage of this opportunity to talk "brick," being satisfied in my own mind that the best way to help Evansville would be to encourage the building of substantial residences.

My opening paragraphs would apply with equal force in any locality. I said: "Brick is the only building material that is strictly made in Evansville and the main cost in its production is for labor. Money spent for brick helps Evansville labor. On all other building materials the chief item of expense is the raw material for which the money is sent away from Evansville." The remainder of the article consisted of arguments favorable to brick houses which were taken from the booklet "Maintenance of a Brick House."

To emphasize the "Brick House Safe From Fire," we published a photograph of the Hulman building taken after the fire. $100,000 worth of groceries were entirely consumed within this building, not a vestige being left of floors or roof, the solid brick walls, remaining intact and with but slight repairs are serving again in the otherwise new building.

It seems strange that many cities have to go through the experience of a great conflagration before their eyes are opened to the necessity of using only fire-resisting materials in crowded centers. It is only by the free use of the columns of the press, in calling attention to incidents like the Hulman fire, and in circulating the book published by our association "The Brick House Safe From Fire" that we can hasten the day when our material will receive the recognition to which it is justly entitled.

By taking a liberal advertising space in the magazines published by our local architects we secured the insertion of valuable reading matter calculated to influence both the architect and his clients.

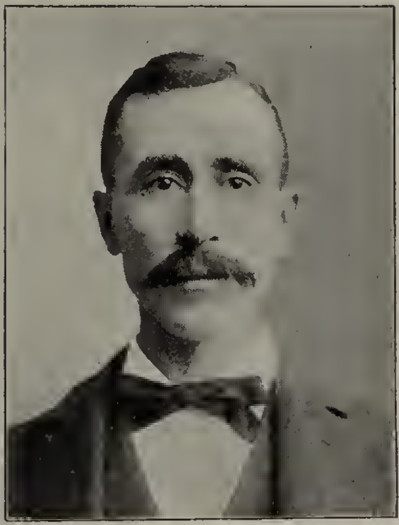
The publishers of these magazines are as a rule glad to get good copy to fill their reading space and we have had no trouble in getting them to use everything we offered them. Our chief difficulty was to find material that directly referred to our product and we were seriously handicapped previous to the publication of the various articles by the Building Brick Association.

One of the greatest obstacles we have had to overcome was the contention that "brick houses are damp" and the saddest part of the matter is that it is only too true when applied to some of the old time residences, which were built upon low ground, with insufficient drainage, the floor joists being placed barely above the ground, and no damp check or air space in the walls. To convince people that these difficulties have been entirely overcome, in the modern construction of a brick house, will require a constant repetition of the facts for some time to come. We thought

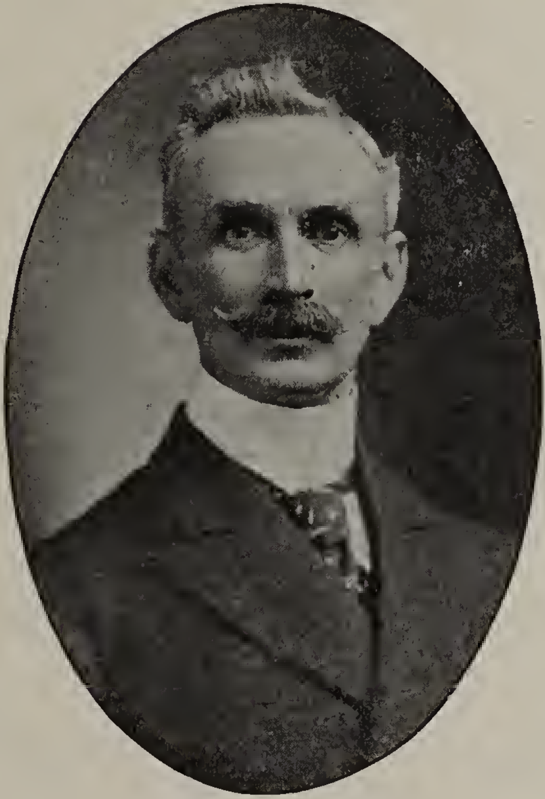
W. C. Murray, Reynoldsville, Pa.

J. W. Robb, Clinton, Ind.

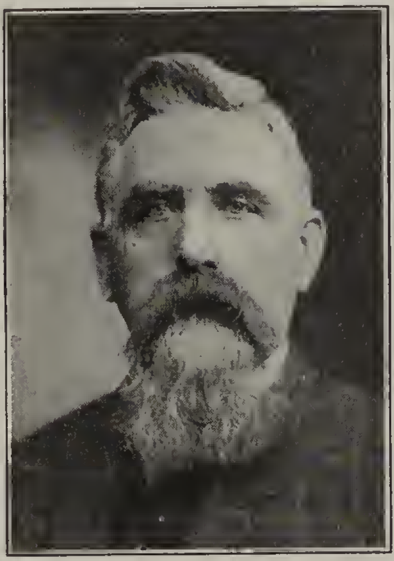
Wm. Hanley, Bradford, Pa.



Davis Brown, Tecumseh, Mich.



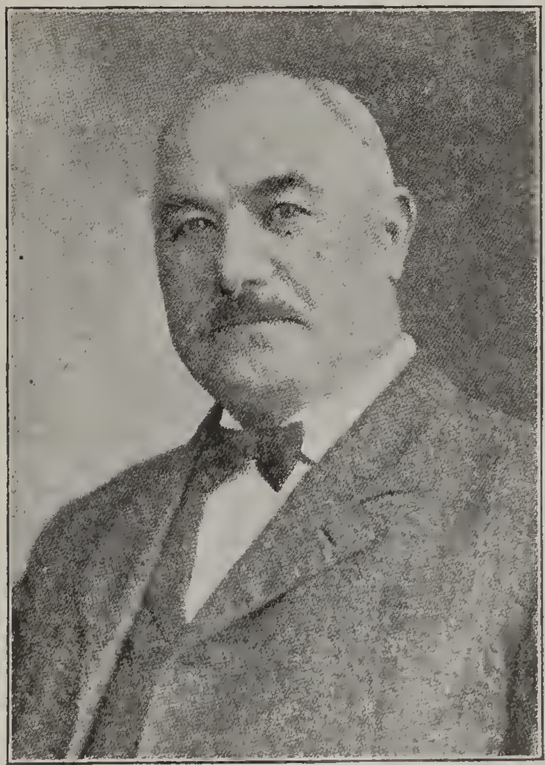
Wm. McCannell, Milton, Ont.



J. L. Ringle, Pres. Wisconsin Assn.

Mr. Cox, of the Marion Shovel Co.

G. B. Mentz, Walkill, N. Y.



Philip Goldrick, a Hudson River Brickmaker.

the very best counter argument that could be made, would be the personal evidence of some of the best known people in our city, prominent in business and professional circles, so we framed up the strong positive statement before you on the screen and had no difficulty whatever in getting these and additional signatures.

Our recommendations to all builders of brick houses are as follows: See that your yard is properly drained, and all water from down spouts drained away from the house. In grading the lot, make the highest point at the foundation of the house, running a gradual slope away from the house to the yard limits. Have the floor joists from 2 to 3 ft. above the ground. Put a layer of slate over the entire foundation wall, just above the grade line to serve as a damp check. Provide an air space of from 1 to 2 in. between the outside 4 in. wall and the inside wall, using metal wall ties and blind headers. Use plenty of good cement in the mortar. When these ordinary reasonable precautions are taken we are free to guarantee that the house will be absolutely and perfectly dry and comfortable in all seasons.

Since the Building Brick Ass'n has concentrated its advertising efforts upon the brick house proposition we thought it wise to do the same in our local ads, and while the National Association has been stirring things up in the magazines and through their various books of designs and brick house literature, we have been making constant appeals for the residence buildings and where formerly, nearly all the best houses were built of frame (one built in 1909 costing $12,000) we can truthfully say that in 1910, all the best houses were built of brick, instead of two or three as in former years we built 16.

We have had a great many of our houses photographed and feel sure that they have added force to our advertisements. The objection being that they were expensive, costing us $3 apiece, $2 for the photograph and $1 extra for the cut. The loss is in the fact that they can be used to advantage but once. Here again is where the association can be of great benefit by acting as a clearing house, and bringing about exchanges of cuts between all members who do similar advertising. In this way no member would have to pay for more than two or three photographs per year and yet he could have a new and different cut in his ad every week for the price of the transportation charged by mail or express, not over 25 cents.

We find it no small job to frame up display matter that in our judgment will "touch the spot," and to tell the old story in a new way, so we were delighted to receive from Mr Parker Fiske, his series of "Brick Talks," very many of which we used to good advantage. To our mind this association should raise enough money to employ one of the best copy writers in the country, have these ads electrotyped and distributed among all members who wish to do local advertising. These plates should not cost members more than 25 cents apiece and the newspaper will also deduct this much or more from your bill in not having to set up any type. By this arrangement the manufacturer in the smallest town could have as striking and attractive an ad in his local paper as the largest manufacturer in the city. He could rest assured that his ad would be high class, command attention and respect, and appear original, and at the same time would require no wear and tear upon his thinking apparatus, would free him from all worry and care in the matter and provide him with a most creditable advertisement at a trifling cost.

There is such immense power and economy in consolidation and co-operation that it is amazing to me that these accepted laws of business have not been more universally adopted in our sales department.

One thing that has helped very much to bring brick to the public notice in Evansville, was the organization of the "Brickmen's Ass'n," which the members of our company were instrumental in organizing. It is an affiliation of the brick-manufacturers, brick-contractors and dealers for the purpose of promoting the use of brick. The things accomplished were:

Made plenty of noise in the papers about our meetings and let folks know we were there. Raised a special advertising fund and advertised brick without attaching any firm names to the ads. Sent committees to make talks to brick-layers union, urging them to do missionary work among all their friends who were contemplating building, and offered to keep them supplied with literature to help them in this work. Secured the appointment of a building inspector. Agitated the extension of the fire limits.

We don't pretend to have achieved the end of our ambition at Evansville, but we claim that things are beginning to come our way. For instance, they no longer build frame factories. Since we got some of them started in brick, it's not so hard to get others to follow. Our Mr. Kleymeyer went to see the head of the firm and argued for brick. The result was that Mr. Smith was as much surprised at the high cost of the carpenter contractors' figures $5,700 as he was surprised at the low figure made by the brick contractor $7,000. He not only chose brick for these buildings but has since built an immense brick warehouse much larger than the original factory building.

The Globe Furniture Co., whose frame factory building appeared first on the screen, has in the meantime built three immense factory buildings of brick and a fine office building.

From the local building inspector's report for 1910 made to the Government we find that there were 362 wooden buildings erected, valued at $304,848; 78 brick buildings, valued at $791,834.

We can readily see that through the use of the magazines and the circulation of helpful literature, the association may become for each of us a wonderfully capable and effective salesman at a cost that is ridiculously low. Let us not be like ten of the twelve spies, whom Moses sent up into Canaan to spy out the promised land, who, when they returned said, "we came into the land whither thou sentest us, and surely it floweth with milk and honey. Nevertheless the people be strong that dwell in the land, and the cities are walled, and very great. And there we saw the giants, the sons of Anak, which come of the giants, and we were in our own sight as grasshoppers and so we were in their sight."

Why not do like the other two spies, Joshua and Caleb who said "Let us go up at once, and possess it; for we are well able to overcome it."

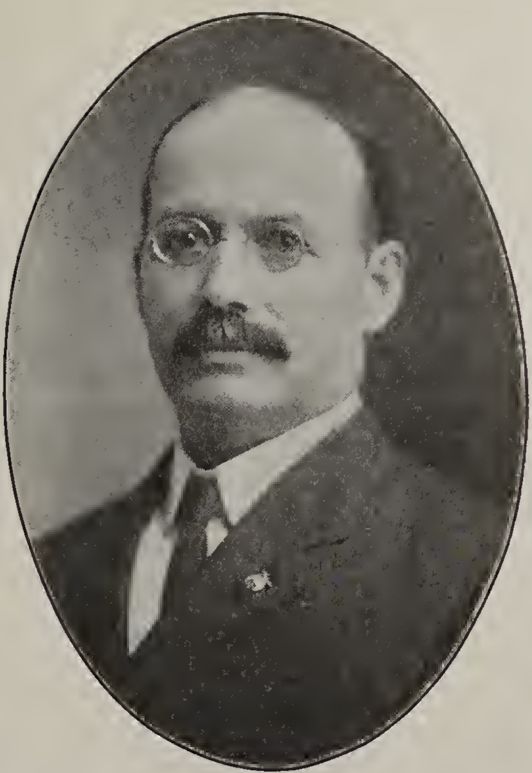
Those of you, who are familiar with holy writ, will remember that the first greaat victory of Joshua's invading army was the taking of the walls of the City of Jericho and the main thing they did to accomplish this was to blow loud their horns and all the people shouted with a great shout, and the Lord did the rest.

Why spend a fortune in building a modern plant with large capacity and then be content to see it idle for weeks and perhaps months at a time, missing the chance to round out a good profit in order to save a few hundred or a thousand dollar advertising bill?

The man who whispers down a well
About the goods he has to sell—
Won't reap the shining golden dollars
Like he who climbs a tree and hollers.

A. A. Oldham, Head of the Bonnot Co., Canton, O.

H. H. Fate, President J. D. Fate Co., Plymouth, O.



J. W. Hensley, Veteran Machinery Man, Connected with the Wellington Co.

H. O. Steele, of the Firm Steele & Sons, Statesville, N. C.

Chas. Stevenson, Head of the Stevenson Co., Wellsville, O.

John Moroney, President of the Chicago Brick Machy. Co., Chicago.

Wm. Simpson, Sales Manager of the Frost Mfg. Co., Galesburg, Ill.

E. H. Vitalius, Head of Brick Department of the American Blower Co., Detroit, Mich.

A. W. Aylesworth, of the Bonnot Co., Canton, O.

### The Banquet.

The annual association banquet held in the main dining hall of the Seelbach on Thursday evening was the star feature of the entertainment program. A very elaborate menu was served to 263 guests. The tables were prettily decorated with carnations. Music was provided by an orchestra of four pieces, whose selections were interspersed with songs by Miss Isabelle Wetherton, whose charming voice brought her the title of "the sweet singer of Kentucky." Song books were provided and good cheer was furthered among the banqueters by the singing of popular songs.

In the feast of oratory which followed the singing, unquestionably that popular paving brick man, J. M. Hoskins, of Terre Haute, Ind., made the hit of the evening and surprised his friends with his wit and versatility. His humorous and well-rendered recitations brought forth enthusiastic applause and he was compelled to respond to several encores.

Owen Tyler, one of the best known business men in Kentucky, and a resident of Louisville, was toastmaster, and filled his trust in a most commendable manner.

Governor Agustus E. Willson, who is likely to be the next Republican vice-president, was introduced amid applause. His address, while brief, was witty and interesting, and among other things he said:

"You have been made welcome to Louisville by Mayor Head of this city, but Louisville is only a part of Kentucky. I want to say 'howdy' for the whole state of 'Kaintuck.'" He characterized Kentucky as the best place outside of Heaven that the Good Lord ever made, but an American is an American no matter in what state he is, or from what state he comes. "We are glad you are here," continued Mr. Willson, "and we would be glad if you could stay with us another week. We would like to have you stay here a month, and if you please, would like to have you make your homes in Kentucky. I have been asked to talk on 'Mortal Clay,' but Kentucky has one 'Immortal Clay,' and that's enough. I have looked over this old world of ours and I cannot think but that it is growing better, happier and more beautiful. I am an optimist and not a pessimist. I like to come right out in the open and fight. You are friends working together, and fight each other out in the open. You can learn a great deal one from another and you are all working for the advancement of each other."

Charles H. Bryan, of Detroit, Mich., responded to the toast "Good Fellowship." He took the broadest view possible of this subject and the uplift thought characterized his address throughout. He declared he had been welcomed to Louisville by a Democratic Mayor and to Kentucky by a Republican Governor. "These look like good fellows," said Mr. Bryan. He dwelt at length upon the character of the human being, comparing it with some brick, which appear all right on the surface, but are all wrong inside, just like some men appearing all right on the surface but are all wrong in their hearts. "The right kind of good fellowship pays the largest dividends," continued Mr. Bryan. "In business it is the most valuable asset. You do not have to get the written word of a man when he is a real good fellow. His word is worth more than money, when compared with dollars and cents. It is the confidence of a good fellow that counts, and the confidence of a good fellow is the best asset in the world. The real good fellow vindicates the character of the defenseless and he never strikes below the belt."

The Rev. Aquilla Webb of the Warren Memorial Presbyterian church next filled the place of F. W. Fitzpatrick, of Washington, who was scheduled to make the next address. Dr. Webb told several most amusing anecdotes and closed with an address that proved something of a sermon in which he said:

"The success for which we strive is not that which is achieved in a day with spectacular tricky methods, but that which we get from working at our trade and doing well what other men are doing poorly.

"Kentucky is a state where a bluff won't go. I found that out soon after I came to this city, and I have to say I like that spirit. The man today who is spectacular in his daily life and business affairs, is not the one who is succeeding, but the successful man is he who goes along, in the even tenor of his way and does the things which the other fellow has left undone. As a minister of the gospel I want to say of the future, that the man who works with his head as well as with his hands is the man who is going to make a success of his life's work and of the future. Until men put some of the fundamental truths of religion in their business, we preachers might as well not preach. Be honest in your trusts and combinations. Although Kentucky is noted for its whiskey, I want to tell you that I have never come in contact with a more honest, sober and industrious set of men than right in this state. Study how to put character into brick, as well as into yourself."

Dr. S. W. Stratton, Director of the Bureau of Standards in Washington, gave a most interesting talk on "Life's Standards." Dr. Stratton applied the necessity of fixed standards in scientific work to everyday life, saying that we should all have standards self-imposed for which we should work in the end.

Mayor Head of Louisville made the farewell speech. He told a number of witty stories which created no end of laughter, then he got down to a more sober vein of thought, speaking upon "Our Better Selves." Mr. Head said in part: "If we get you people to stay here for another week, or say for another month, we will have a boom on in Louisville. You have been talking prosperity, and you look as if you know what that means. I want to tell you that one of the first homes built in this county was made of brick, and these brick came from England. But, thank goodness, we don't have to go to England for our brick today, and the only kind we want is the brick upon which is stamped on the face 'U. S. A.' We here in Kentucky and the South, know no North, no East, no West. We are all one great united people. But stick a pin in this that if you of the North, you of the East, and you of the West, ever want help, just sound the horn and Kentucky and the South will throw out the longest life line that was ever woven. For it's not the States today, it's the Stars and Stripes and the Union forever."

The banquet closed with the singing of "Auld Lang Syne," led by Governor Willson, and sung while the guests clasped the hand of his or her neighbor.

Beauty was added to the gathering by the presence of nearly one hundred wives and sweethearts, attired in handsome evening gowns.

### Clay Machinery Manufacturers.

The annual meeting of the National Clay Machinery Association was held on Wednesday morning, little business being transacted beyond the re-election of officers as follows: President, L. W. Penfield; vice-president, H. J. Flood; treasurer, J. H. Chambers; secretary, W. N. Durbin.

Mr. B. E. Place of the E. M. Freese Co., was elected a member of the executive committee for three years. H. H. Fate of Plymouth, O., and F. W. Bennett of Wellington, O., are the other members of the committee.

## WOMAN OWNS LARGE BRICK PLANT.

Mrs. George A. Buckley, of Montrose, Col., has the distinction of being one of the few women in the world at the head of a brick manufacturing plant, and she was an interested visitor at the Seelbach Hotel, during the convention at Louisville, Ky. She is the owner of the Buckley Brick & Tile Co., and is the widow of the late Senator N. S. Buckley, for eight years a member of the Colorado State Legislature.

After Senator Buckley's death, six years ago, Mrs. Buckley decided to go into business for the sake of employing her time and mind, and being a farsighted person, she had an inspiration about the brick and tile business.

Mrs. Georgia Buckley, Montrose, Colo., Only Lady Member of the Convention.

The great Gunnison tunnel was then a live question before the Colorado Assembly, and Senator Buckley had been one of the chief edvocates of the project.

Having heard much discussion about the engineering of the tunnel, the results to follow upon its construction, Mrs. Buckley realized that the completion of the tunnel meant a great change in the drainage of certain portions of the state, and that drain tile would be much in demand.

Having an opportunity to buy a desirable site for a brick plant, she did so, erected her own factories, and is now in a position to turn out 50,000 brick a day. She manufactures four kinds of brick and tile—dry press, wire cut, hollow block and drain tile.

After the death of Senator Buckley, society no longer appealed to her, and she decided that she must have a business to absorb her attention.

"The brick business certainly does that," she said. "It requires all one's thought and brainwork, whatever else may be said of it."

## THE MAN AND THE HAT.

There was no happier convention delegate than C. P. Mayer, president of the Mayer Brick Co., of Bridgeville, Pa. Mr. Mayer wore a pretty red vest throughout the convention. This piece of wearing apparel was greatly admired, and especially by his fellow members in the Paving Brick Association.

During the closing hours of the association meeting, R. D. Culver, of the Wabash Clay Co., presented Mr. Mayer with a large box. In making his presentation speech he declared that "because of the great interest Mr. Mayer had taken in the uplift movement of the paving brick industry, its members felt bound to show their appreciation, and he would therefore, on the part of the paving manufacturers in session, present their fellow member with a new hat, which he trusted would be accepted in the spirit in which it was given."

The box was opened, and in it was a bright red felt hat—the kind the young women wear.

Mr Mayer placed the hat on his head, thanked the members for their kindness, and said: "I'll wear this hat to the next convention."

C. P. Mayer, Bridgeville, Pa., "The Man With the Hat."

The staff photographer of "Brick and Clay Record" was on hand and the picture of Mr. Mayer and his new red hat is shown.

# LIVE FISH IN THE WHIRLPOOL OF TRADE

## Machinery and Equipment Men Who Make The Convention "Wheels Go Round"

Several manufacturers made special reservations for their displays, these being in rooms on lower floors. However, on the tenth floor, to the left of the lobby entering the auditorium, was the exhibit of the American Clay Working Machinery Co.

The C. W. Raymond Co. also had a well arranged exhibit, mention of which is made in detail elsewhere in this issue.

There was something of interest to be learned at each exhibit, and as an educational feature of the convention, its general use cannot be denied.

Twelve shades of face brick were shown on the exhibit table of the Ironclay Brick Co., of Columbus, O. A feature of this product, as truthfully claimed by the manufacturers, is that the brick is self-cleaning, and is of a vitreous character. The display created considerable favorable comment among the brick manufacturers.

Representatives of E. M. Freese Co., Galion, O., at the Louisville Convention.
H. H. Freese, E. L. Hess, A. J. Freese and B. E. Place.

Three grades of face brick were shown by C. H. Forry, president and general manager of the Hanover Red Pressed Brick Co., of Hanover, O. The product consists of dry press, impervious and Bossage face brick.

L. W. Harston and R. S. Richards were in charge of the exhibit table of the Atlas Car & Manufacturing Co., of Cleveland, O. The firm had quite a supply of catalogs to distribute, and all the creations of this concern were told about at length. The various kinds of cars for clay plants made by this company form a long list, and the users have always been well pleased with the stability of these cars.

"Chestnuts and Facts" was the title of a happy little circular distributed by the Ohio Ceramic Engineering Co., of Cleveland, O., through its representative, D. L. Wadsworth. It has been made known that this company has made and sold over 60,000 brick drier cars since it has been in business, which speaks volumes for the product of the company. The "Lakewood Line" double-deck brick-drier car was conceded by manufacturers to be one of the best shown at the convention.

C. L. Rorick, sales manager for the Arnold-Creager Co., of New London and Cincinnati, O., was in charge of this firm's interests at the Louisville convention. The firm builds clay working machinery, and its product has been sold and is in use throughout the world. The "Budget," which is the title of the 27th annual catalog of this well known firm, is being distributed, and it contains many interesting points concerning brick and clay working machinery that are of importance to all connected with this trade.

C. F. Rabbeitt, of Chicago, Ill., representing the Orenstein-Arthur Koppel Co., was in charge of the firm's business at the convention. Mr. Rabbeitt had a number of small working models of the products of the firm for clay workers at the convention, and besides always had an interesting group of men about him when the creations of the company were told of.

Many photographs of the various uses to which a steam shovel might be put were shown by Harry L. Cox, representing the Marion Steam Shovel Co. Catalogs and literature concerning the shovels were given away generously, the descriptive matter being of considerable interest to the trade as a whole.

C. H. Horton, of Painesville, O., was representing the Henry Martin Brick Machine Manufacturing Co., the plant of which is at Lancaster, Pa. Like all other exhibitors, Mr. Horton had a lot of convincing literature to give, and he saw to it that no visitors escaped him.

THE BIG TRIO OF THE RAYMOND CO., DAYTON, O.
Geo. W. Raymond, General Manager; Chas. W. Raymond, President; Chas. W. Raymond, Jr., Vice-President.

Brick molds and brick barrows were told about at the convention and in the exhibit hall by the James B. Crowell & Son, of Wallkill, N. Y.

There was no more interesting exhibit at the Seelbach Hotel, at Louisville, than that of the Frink Pyrometer Co., of Lancaster, O. One of the spacious sample rooms on the tenth floor was engaged for this purpose. The products of the company were shown in a most detailed and convincing manner. The interests of the company were well cared for by F. J. Frink, R. L. Frink and R. B. Burr.

The use of the pyrometer manufactured by this firm is steadily increasing as is evidenced by the following installations: Westport Paving Brick Co., Baltimore, Md.; Carson Brick Co., Charlotte, N. C.; Coffeyville Vitrified Brick Co., Coffeyville, Kan.; Cleveland Vitrified Brick Co., Cleveland, Okla.; Danville Brick Co., Danville, Ill.; Reading Shale Brick Co., Reading, Pa.; American Clay Machinery Co., Bucyrus, O.; The Clay Product Co., Brazil, Ind.; Chicago Sewer Pipe Co., Brazil, Ind.; McRoy Clay Works, Brazil, Ind.; H. B. Camp Co., 3 plants, Aultman, O.; National Fireproofing Co., Pittsburg, Pa.; 3 plants, Haydenville, O.; 3 plants, East Palestine, O.; 2 plants, Sligo, W. Va.; 2 plants, Perth Amboy, N. J.; American Sewer Pipe Co., Barberton, O.; Great Eastern Clay Co., 3 plants, South River, N. J.; Federal Terra Cotta Co., Woodbridge, N. J.; East Ohio Sewer Pipe Co., Empire, O.; Toronto Fire Clay Co., Toronto, O.; Northwestern Clay Co., New Windsor, Ill.; Patton Clay Mfg. Co., Patton, Pa.

Model of Youngren Kiln.
Exhibits in the Headquarters of the Raymond Co.

Exhibit of Tate, Jones & Co., Pittsburg, Showing System of Oil Burning Equipment.

One of the most interesting delegates at the Louisville convention was John T. Harrington, of the Northern Brick & Supply Co., of St. Paul, Minn. This is one of the largest concerns of the kind in the Northwest, and makes a specialty of brick and its allied supply interests.

The C. & A. Potts Co., manufacturers of brick yard outfits with headquarters at Indianapolis, Ind., had representation at the Louisville convention, and handsome catalogs telling of the products of this company were given all delegates at the national meeting. The firm has always made a strong point in manufacturing machinery for sand-mold brick. The Potts horizontal brick machine was one of the larger machines featured in selling talks at the convention.

Tate, Jones & Co., Inc., of Pittsburg, Pa., had a clever exhibit at the Louisville meeting, and a feature was made of burners which are now being used with great success.

not only among the brick plants of the country but also by pottery manufacturers as well. They are being made for both oil and gas purposes. G. E. Luce was the representative in charge, and there was always an interesting group of manufacturers in the special exhibit room and about his table in the display hall.

Harvey Haigh, brick works engineer, of Catskill, N. Y., was engaged all the time in telling of the good qualities of the Haigh Improved Kiln System, which is used for the burning of both brick, tiles, etc. An important advantage secured by this system of burning arises from the fact that each compartment is fired independently of the other compartments, the settling in each compartment being uniform from top to bottom, consequently different kinds of brick can be successfully burned in the same kiln, filling one compartment with paving brick, another with pressed brick, another fire brick, as may be desired.

A Few of the representatives of the American Clay Machinery Co., Bucyrus and Willoughby, O. R. C. Penfield, the head of the Company, is the center figure in the bottom row; back of him at the right stands L. W. Penfield, and back of him at the left R. O. Perrott, sales manager. In the center at the back of Mr. Penfield stands F. L. Hopley, advertising manager.

Charles J. Peterson, representing the Weller Manufacturing Co., of Chicago, engineers, founders and machinists, was explaining to hundreds of delegates at the convention the Weller improved oil burner, which is characterized by its simplicity. The company also manufactures elevating, conveying and power transmitting machinery for brick plants. Screens of every description are also made by this concern. The representative gave out a neat little souvenir,—an imported two-blade vest pocket penknife—a little token that was highly appreciated by convention visitors.

Exhibit of the Wellington Machine Co. Mr. Bennett and J. W. Hensley, the Middle-West Representative.

A Remarkable Display of Burned Clay Products Shown by the American Clay Machy. Co.

John J. Moroney—"King of Ireland"—as he is known to himself and hundreds of friends, was at the Louisville convention and doing business from the time he "landed" until he started for home. He was representing the Chicago Brick Machinery Co., of Chicago, of which he is president. He had convincing selling talks to the hundreds who visited his "stand." The No. 10 catalog Mr. Moroney distributed is filled with many interesting talks on brick machinery.

O. C. Sylvester, secretary of the Mathews Gravity Carrier Co., of St. Paul, had charge of this firm's exhibit at the Seelbach Hotel, and he was ably assisted by A. S. Dehler, chief engineer of this company.

The accompanying picture shows, in detailed form, the actual use of the gravity carrier as manufactured by this company. The rollers are of metal, and therefore have the wearing qualities, thus saving the manufacturer of brick time and money in loading cars direct from the kilns.

These carriers are being installed very generally by the brick manufacturers throughout the country, for it has been proved by the brick man that the carrier is a great money saver.

The picture shows the gravity carrier of this concern in actual use at the plant of the Calhoun Brick & Clay Co., at St. Louis. A "string" of brick is noticeable rolling into the cars direct from the kiln.

William Simpson was in charge of the boosting department of the Frost Manufacturing Co., of Galesburg, Ill., manufacturers of engines, boilers and dry pans. There was any amount of literature distributed among the many visitors at the convention, and the good qualities of the product of this well known firm were brought out in a convincing manner.

Locomotives such as are used with success by brick, tile and clay manufacturers, and manufactured by the Davenport Locomotive Works, were exploited throughout the convention by J. H. Coley, who explained that the Davenport locomotives were the most economical a manufacturer could use. The capacity of their plant has been greatly augmented, because of the great demand for their engines in the clay industry. Up-to-date clay manufacturers are interested in saving time, and the use of locomotives is conceded to be the best and cheapest method of hauling the clay from the bank to the plant.

Members of the New Manufacturers' Equipment Co., Dayton, O.
Reading From Left to Right: J. H. Schroll, I. M. Justice, W. H. Sachs, H. G. Mattern, E. M. Mahlmeister.

Just how the Sawyer Belting Co. manufactures its well known product was shown in detail at the exhibit of the company in the exhibition hall by E. F. Deckert, W. Reese and Clarence Mack. Various sizes of belting were shown, and the belting for conveyor purposes was of especial interest to the many visitors at this exhibition.

DAVENPORT LOCOMOTIVE WORKS. DAVENPORT, IOWA
DAVENPORT LOCOMOTIVE WORKS DAVENPORT, IOWA.
24-B.

The Showing of the Davenport Locomotive Works.

SAND MOULD BRICK MACHINES, OUR SPECIALTY. G.&A. POTTS & CO. Indianapolis, Ind
DISINTEGRATORS. PUG MILLS, MOULD SANDERS, GRANULATORS or FEEDERS. BrickYard Accessories. C.&A. POTTS & CO. Indianapolis, Ind.

"Al" Potts and Geo. Potts, Representing C. & A. Potts Co.

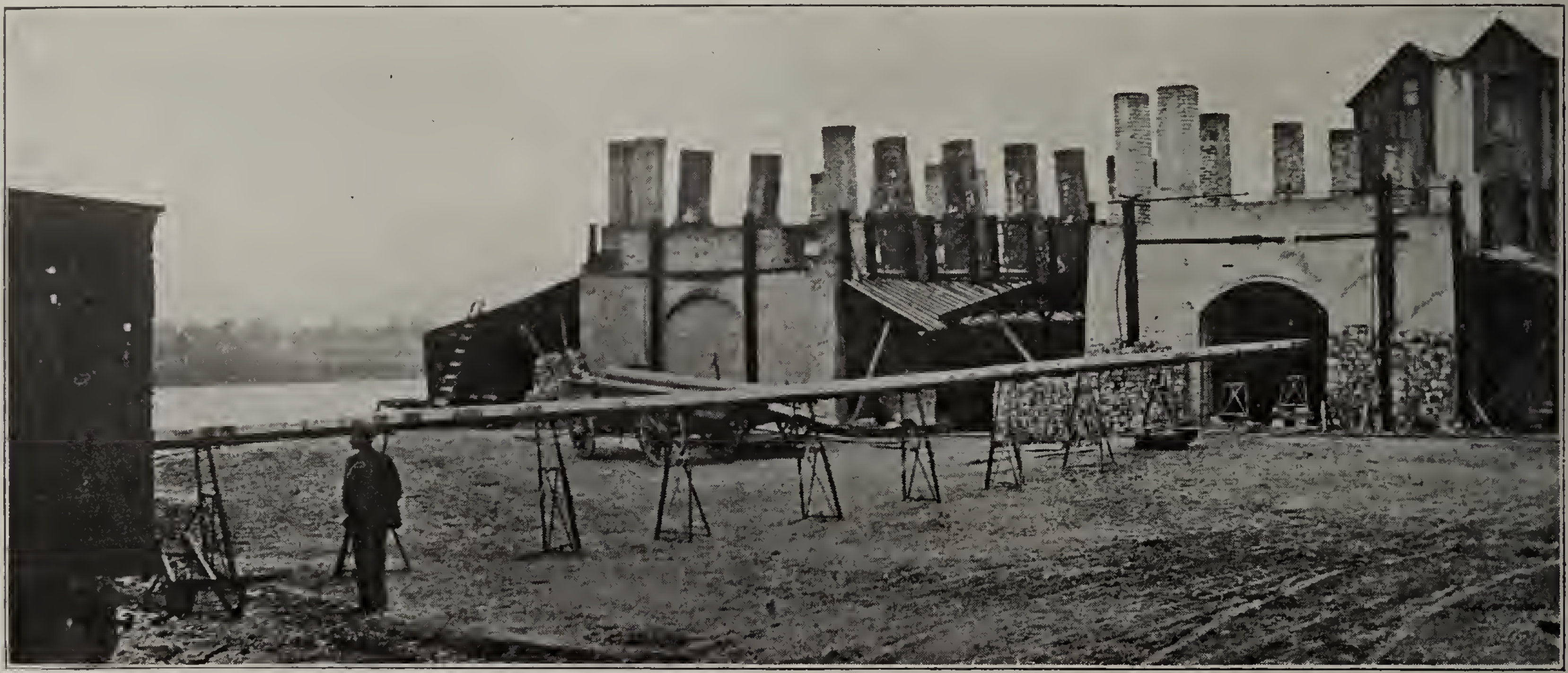
A full sized model of the well known Marion flue boiler, manufactured by the Marion Machine, Foundry & Supply Co., was displayed in the exhibition hall. This blower is manufactured under four patents, and the general use of the blower is becoming extended. The blower of this concern is a permanent fixture in the rear wall of the boiler, and by its generous use the life of the boiler is greatly extended. A good feature of this boiler is that the soot is blown in the direction of the natural draft, thence out through the chimney. Strains are therefore avoided which prevail under the old methods.

Considerable levity was created among the visitors in the exhibition hall by the novel souvenirs of the Independent Powder Co., of St. Joseph and St. Louis, Mo. This firm had several thousand round sticks wrapped in a paper cover, a true representation of the regulation iron stick of explosive. These were handed out freely by C. Fred Foley, the representative in charge, and the advertisement was considered one of the best "pulled off" during the convention. The Independent standard brands are 40 and 60 per cent nitro-glycerine and 40 per cent gelatine. The products of the firm are put out in 50 lb. cases. The firm also distributed lead pencils, blotters, catalogs of blasting supplies, calendars, a copy of "rules for handling and storing explosives" and printed matter of various character.

An "Auto-Calculator" was a distinct novelty given out at the convention by the Sawyer Belting Co., of Cleveland, O. This calculator is for quick reckoning of the speed of pulleys, etc. On the reverse side is a quick reckoning device on scales of lumber, and on the whole the arrangement is a mighty convenient one.

The Main Belting Co., of Chicago, Ill., was represented as usual at the convention, and a lot of information was given the delegates by the firm's representative concerning the quality of the product of this concern. It was shown in one instance that where a 40-inch Leviathan belt was put into service on a main drive of a well known plant eleven years ago this month, it is still in service, and is in excellent condition. In the meantime it has never caused the firm possessing it a moment's trouble. The company has offices in New York, Philadelphia, Boston, Buffalo and Pittsburg.

M. M. C. Everhard represented the Everhard Co., of Massillion, O., and showed in detailed form brick of the impervious high grade facing quality, which created no end of favorable comment among the brick manufacturers and those interested in building brick. Their display of "tapestry" brick was one of the best and its use is becoming more general every year.


Plant of the Calhoun Brick & Clay Co., St. Louis, Mo., Showing Matthews Conveyor.

The J. D. Fate Co., manufacturers of clay working machinery, of Plymouth, O., never does things except in the "proper manner," and that is why the exhibit table in the "big hall," in charge of H. J. Votaw, was always an object of interest to the delegates. A supply of special literature had been prepared for the exclusive use of the convention, showing in detail many special pieces of machinery made by this firm. Another interesting feature connected with the exhibit was the distribution of leather-bound souvenir pocket filing cases. The latter were of especial value to all manufacturers, as they were made with a view to strength.

The Atlas Car Co.

A Chase Dryer Car.

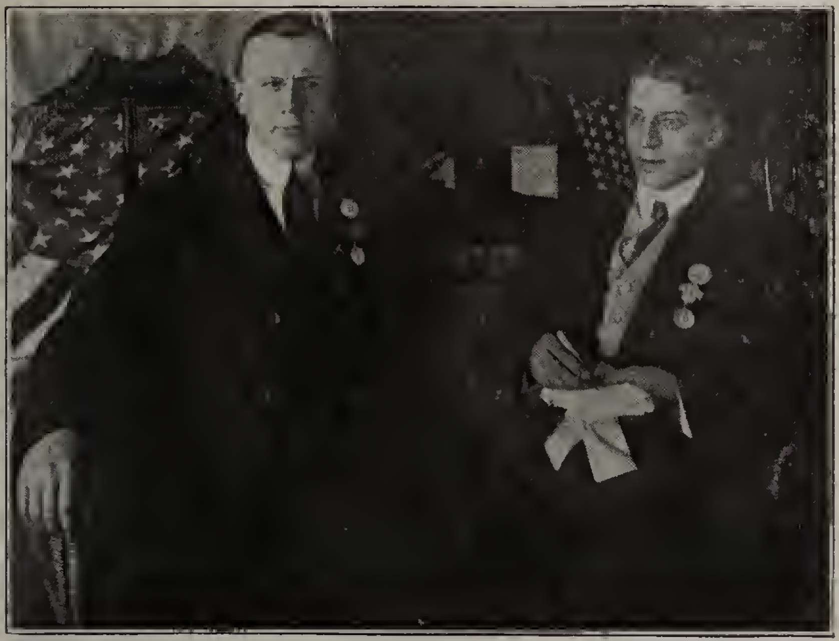
Alfred Yates, general manager of the Shawmut Vitrified Paving Brick Works, of Shawmut, Pa., displayed a number of paving blocks manufactured by this company, and the product showed that great study had been given to the manufacturing end. Mr. Yates also "passed out" to his friends, and these were many, a colored underglazed tobacco jar, with relief figures. When the top was lifted the card of the representative was found, and as a result his generosity was commented upon in a most pleasing manner.

Although 20 or more brands of roofing materials were shown by L. M. Rice, Jr., manager of the Central Paint & Roofing Co., of Louisville, Ky., the "Security" brand was prominently featured. This is an asphalt roofing material and has been found to give excellent satisfaction whenever used.

The Standard cement grout mixing box, which is the creation of the inventive brain of Mr. Will P. Blair, the result of considerable hard study, was shown in the exhibit hall, and was freely commented upon by the paving brick people especially. This box is of a movable character and can be moved hither and thither at the will of the "man with the hoe" and his assistants, whenever it is used in connection with the building of highways.

The products of the Brazil Clay Co., of Brazil, Ind., were shown in the exhibit hall. The company is one of the largest manufacturers of impervious face brick in that state.

W. P. Grath, president of the Illinois Supply & Construction Co., of the Century Bldg., St. Louis, was one of the interesting visitors at the Louisville convention. Catalogues and literature having to do with the manufacturing of brick and roofing tile machinery, and kilns for all kinds of clayware was distributed.



E. M. Hall and J. H. Coley, of the Davenport Locomotive Co.

Ralph S. Richards, with the Atlas Car & Manufacturing Co., of Cleveland, O., was distributing a miniature screwdriver as a souvenir at the convention. Mr. Richards was ably assisted in boosting the product of the Atlas company by L. W. Harston.

Catalogues and literature telling about the Chambers Brick Machinery Co., was distributed in the exhibit hall of the Seelbach Hotel by the representatives of the company.

The Fate Headquarters, Showing Mr. Fate, the President, and Messrs. Votaw and Anderson.

A "never break" lead pencil was a souvenir distributed at the convention by the representatives of the Davenport Locomotive Works, of Davenport, Iowa.

Harry W. Smith, president of the "Hired, Tired and Fired Political Club" of East Liverpool, O., was at Louisville in the interest of the Roessler-Hasslacher Chemical Co., of New York and East Liverpool. Mr. Smith is manager of the western division. He was for many years a member of the East Liverpool city council, and when the administration changed the above-named political association was formed, of which Mr. Smith was made president. Once a year a banquet is held at the Ft. Pitt Hotel, Pittsburg, Pa.

Four rooms on the tenth floor of the Seelbach Hotel were occupied by the American Clay Machinery Co., of Bucyrus, O., the sales department being in charge of C. B. Sharer. In one room were photographs and working plans of the machinery of this company, while in another there was a moving picture exhibition of clay-working machinery. The machine was in charge of Operator Ralph Merollo.

One of the Exhibit Tables.

Another room was used for the exhibiting of clay products which are made with machinery manufactured by this company. Products were shown from the following plants:

Grand Ledge Clay Products Co., Grand Ledge, Mich; McMillan Brick Co., Molino, Fla.; Rockmart Brick Co., Rockmart, Ga.; Tiffany Enameled Brick Co., Momence, Ill.; Streator Paving Brick Co., Streator, Ill.; Barr Clay Co., Streator, Ill.; Hydraulic Pressed Brick Co., Brazil, Ind.; Brazil Clay Co., Brazil, Ind.; Des Moines Clay Mfg. Co., Des Moines, Ia.; Mississippi Glass Co., St. Louis, Mo.; Niles Fire Brick Co., Niles, O.; Laclede Christy Fire Bk. Co., St. Louis, Mo.; Evans & Howard Fire Brick Co., St. Louis, Mo.; Oakland Pressed Brick Co., Zanesville, O.; Hanover Red Pressed Brick Co., Hanover, Ia.; Greer Beaby Clay Co., Magnolia, O.;

Instruments Shown by the Frink Pyrometer Co.

Western Brick Co., Danville, Ill.; Marion Brick Works, Indianapolis, Ind.; Harbison Walker Refractories Co., Pittsburg, Pa.; West Canton Paving Brick Co., Canton, Ill.; Alton Brick Co., Alton, Ill.; Copeland Angly Shale Brick Co., Birmingham, Ala.; Sayre & Fisher Co., Sayreville, N. J.; Parry Brick Co., Boston, Mass.; Coffeyville Vitrified Brick Co., Coffeyville, Kas.; United States Penitentiary, Leavenworth, Kas.; Murry Roofing Tile Co., Cloverport, Ky.; Southern Clay Mfg. Co., Chattanooga, Tenn.; Brown, Hull & Co., Chattanooga, Tenn.; A. H. Hews Co., Cambridge, Mass.; C. P. Mayer Brick Co., Bridgeville, Pa.; Stockton Fire & Enamel Bk. Co., Stockton, Cal.; Pringle Turpentine Cup Co., Daisy, Tenn.; Southern Fire Brick & Tile Co., Hillsdale, Ind.; Beaver Clay Mfg. Co., New Galilee, Pa.; A. McDonnell & Son, Leeds Junction, Me.; Flint Brick & Coal Co., Des Moines, Ia.; Altoona Vitrified Brick Co., Altoona, Kan.; Mound City Roofing Tile Co., St. Louis, Mo.; Puritan Brick Co., Hamden, O.; Big Four Clay Co., Canton, O.; Dover Fire Brick Co., Cleveland, O.; Trimble Brick Co., Trimble, O.; Wooster Shale Brick Co., Wooster, O.; Huntington Roofing Tile Co., Huntington, W. Va.; Athens Brick Co., Athens, O.; Nelsonville Brick Co., Nelsonville, O.; Reading Shale Brick Co., Reading, Pa.; Star Encaustic Tile Co., Pittsburg, Pa.; United States Roofing Tile Co., Parkersburg, W. Va.; Ohio Mining & Mfg. Co., Shawnee, O.; Copeland Inglis Shale Bricks, Birmingham, Ala.; Ludowici Celadon Co., Chicago Heights, Ill.

Exhibit of the Arnold-Creager Co., New London, O.

IAMS
USHER
R Co.
13-C.

Chicago Brick Machy. Co., Mr. John Moroney

Among the souvenirs given callers at this exhibit were a round clothes brush, paper knives, lead pencils and writing pads.

INDEPENDENT POWDER CO.
OF MO.
25-B.

The Independent Powder Co.

Weller Mfg. Co. of Chicago.

Brick manufacturers at the convention expressed regret at the inability of Charles G. Stevenson, of the Stevenson Foundry & Machine Co., of Wellsville, to attend the meeting. Mr. Stevenson has been ill at his home for some time, but reports at this writing are to the effect that he is speedily recovering his former health.

The Wellington Machine Co., of Wellington, O., prominent for years in the soft clay end of the industry, were on hand as usual, the firm being represented by Messrs. R. C. and H. S. Bennett, and by J. W. Hensley, that veteran clay man of Indianapolis, who made this his twenty-fifth successive convention. Mr. Hensley handles much of the Middle West territory for this firm. The Wellington line of soft mud machinery and clay-working equipment had a reservation in the exhibit hall where the Messrs. Bennett were on hand to greet all friends.

That "Book of Smiles" is familiar to all clay workers, and is perhaps the most agreeable publication in the field. Its readers await its arrival eagerly for the sake of the wit it contains and incidentally imbibe some good drier arguments in connection with the sales talks of the Standard Dry Kiln Co., of Indianapolis. Therefore the smiling countenances of Mr. Elliott, head of the concern, and of V. F. Outland, the cheerful salesman, were equally welcome among the throng at the Seelbach.

Everybody knows that the Chase Foundry & Machine Co., of Columbus, O., makes all kinds of clay and drier cars. However, A. J. Dunn, representing the company, was on hand to tell of some new wrinkles in car construction which seemed to interest many prospective buyers.

The infant in the clay machinery industry appears to be quite a bouncing baby as represented by John Schroll, W. H. Sachs and other members of the new Manufacturers' Equipment Co., of Dayton, O. Among the big deals of recent date is the selling arrangement made by them with the J. D. Fate Co., of Plymouth, O. They also represent the Stevenson Foundry & Machine Co.'s (Wellsville, O.) line of sewer pipe presses and pans, and the Chase cars.

The American Blower Co., prominent in the manufacture of drier equipment and kiln construction, was as usual represented by E. H. Vitalius, of Detroit, Mich., who is an acknowledged expert on the subject of drier fans, of which his company manufactures the famous "A. B. C." and "Sirocco" types. This company has also been prominent in the exploitation of the Scott Conveyor System and in the construction of continuous producer-gas fired kilns. Their latest specialties introduced to the clay industry are the "Detroit" return trap and electric light generating plants operated by the "A. B. C." vertical self-oiling engines.

Model of the Marion Flue Blower and Mr. Erlewine.

Very few clay workers are fully informed as to the advantages of manganese steel for use in heavy wearing parts of pans and other clay machinery. Mr. Kneisly, of the Allen American Manganese Steel Co., of Chicago, was on duty to give the benefit of their knowledge of the subject to the conventioners and Mr. Kneisly presented a very interesting and important paper on the subject to the convention.

The Marion line of machinery, including that invaluable adjunct to modern yards, the Rust Clay Feeder, and the new Marion cutters, was prominent at the convention, both in exhibit space and in its representative, Mr. Erlewine. This company reports large and growing sales of the Rust Feeder throughout the country. Their chief exhibit was a full size Marion flue blower, which is fast becoming a necessity for all operators of steam plants.

The new man in the soft mud field is C. L. Rorick, salesmanager for the Arnold-Creager Co., of New London, O., a long established and well known machinery firm. All who have met Mr. Rorick say that he is making good, and he is certainly ably representing his firm and furthering their interests with energy and enterprise.

The Thew Automatic Shovel Co., of Lorain, O., was represented by D. D. Deeds. The Thew steam shovel is seen on many yards throughout the country and has proven a big money saver to clay workers.

H. J. Flood, recognized as a most eminent authority on the manufacture of dry pressed brick, and head of the Chisholm, Boyd & White Machinery Co., of Chicago, was a welcome visitor to the convention. The company was also represented by A. J. Kantz. Mr. Flood reports encouraging conditions in the dry-press branch of the clay industry and his company has made many important sales so far this year.

George W. Dennison, of Cleveland, O., was on hand to show to inquirers the advantages of the Dennison interlocking block construction, which is likely to be an important factor in the clay business when the merits of the block are fully understood.

L. E. Rodgers, head of the Rodgers Engineering Co., of Chicago, and known as the apostle of the waste-heat drying system, was one of the prominent conventioners. His company was also represented by J. O. Trautwein. The Rodgers company has been very busy during the last year installing new driers and it has a large number of orders on its books. These driers are found on many of the leading yards throughout the country.

Thomas M. Wilson, of Philadelphia, Pa., head of the Wilson Kiln & Drier Co., was on hand to show up the merits of the drier and kiln systems of which he is the inventor. Mr. Wilson has been very prominent in this branch of the industry for many years.

The Industrial Car Co., of Cleveland, O., is the successor to the old Cleveland Car Co., and was represented at the convention by W. H. Caskey, well known in the drier car business. They manufacture a high class line of clay and dry cars.

The Haigh Kiln Display, Mr. Haigh in the Foreground.

F. W. Dennis, another veteran in the kiln business, was on hand to meet old friends. He talked up the merits of the Dennison kiln and some nice business is resulting.

Albert Potts, of the C. A. Potts & Co., Philadelphia, Pa., has never missed a national convention, and he is one of the few men who hold this record. There was hardly a convention delegate that Mr. Potts did not know personally, and as a result he was always the center of a group of friends. George Potts, Jr., went to Louisville as the "baby" of the firm, for this was the first time that he has attended a national meeting of brick manufacturers.

The Stevenson Co., of Wellsville, O., was represented at the Louisville convention by M. T. Abbott, whom it was a pleasure for the delegates to meet. The Stevenson concern is one of the best manufacturrs of brick and sewer pipe machinery in the country, and the name is a household one with many.

H. J. Votaw, Popular Salesman of the Fate Company.

A. C. Vicary and D. D. Deeds were the representatives in charge of the special exhibit room of the Thew Automatic Shovel Co., of Lorain, O. In the room was a number of photographs of the shovel in actual work, and blueprints showing the construction and working detail of each model. Catalogues were also distributed.

S. A. Williams, Jr., representing the H. B. Sackett Screen & Chute Co., of Chicago, distributed as a souvenir among the Louisville convention delegates an aluminum check perforating protector and 9-in. rule combined. It is an item of considerable utility, and delegates accepted it as such.

Aluminum match safes were distributed by the representative of the Ricketson & Schwarz Brick Co., of Milwaukee.

The Pulsometer Steam Pump Co., of New York was represented at the convention, and in the exhibit hall considerable literature was distributed which dwelt upon the merits of this creation.

Milton F. Williams, president of the Williams Patent Crusher & Pulverizer Co., of St. Louis, Mo., was at the Seelbach mingling with the visitors and explaining in detail the merits of the productions of this company. He is well known to the trade.

Representatives of the Claycraft Brick Co., offices of which are in suite 303, Hayden Building, Columbus, O., were at the Louisville meeting. The firm operates at Groveport, O.

Large calendars were distributed by the representatives of the James B. Crowell & Co., of Wallkill, N. Y., manufacturers of brick molds and brick barrows.

The Brown Instrument Co., of Philadelphia, Pa., was represented by W. H. Gibbs. Literature dealing with product of this firm was distributed.

R. D. McManigal, manager of the McManigal grateless furnace, had a display table in the exhibit hall, which was well filled with literature and convincing selling arguments for this furnace arrangement. The construction of the furnace is such as to produce a perfect combustion, in which the coal is reduced to coke before being placed in the combustion chamber.

"Clay Today" was the subject of a clever little booklet distributed during the convention by Davis Brown, representing the H. Brewer & Co., manufacturers of clay working machinery at Tecumseh, Mich. It was explained that their No. 88 horizontal drain tile machine was designed particularly to produce the greatest possible output of drain tile between three inch and twelve inch inclusive from material which has previously had suitable preparation.

The Frink Trio.

J. C. Steele & Sons, manufacturers of brick making machinery, the plant of which is at Statesville, N. C., was ably represented at the Louisville convention by H. O. Steele. The firm has given a great deal of attention to the proposition of brick drying and it has come to the conclusion that for most of the southern brick makers, where it is not absolutely necessary to run through the winter, that the lift car system, with properly designed sheds, giving a free circulation of air under the brick and with spaces for air and sunshine between the sheds, is the best and cheapest.

Catalogues and souvenirs were freely distributed at the exhibit table of the E. M. Freese & Co., of Galion, O. The firm is one of the best known manufacturers of brick, tile and fireproofing machinery in the country, and because of this the convention representatives were always busy. The headquarters of the company were in rooms 222-224, parlor floor of the Seelbach Hotel. A very neat and handsome calendar was one of the souvenirs distributed.

Three Live Wires.

"Made a little better than necessary" is the caption on a card distributed at the Louisville convention by W. M. Hodges, general manager of the Tuna Brick Co., of Bradford, Pa.

The Pearl Clay Products Co., of Bradford, Pa., was represented at Louisville by G. W. Foster, president and general manager of the company. He is well known in the trade, and was always surrounded by a number of admiring friends.

Mr. Clark, sales manager of the Kittanning Clay Products Co., and the Martin Brick Co., of Kittanning and Pittsburg, Pa., was representing these concerns at the Louisville meeting. The Martin brick is considered one of the best manufactured on the market to-day, and a number of samples were exhibited.

Electricity for use in brick manufacturing establishments is being advanced by the Westinghouse Electric & Manufacturing Co., of Pittsburg, Pa., and the firm was represented at the Louisville convention by the resident Louisville representative. One of the most convincing arguments advanced for the use of electricity in the brick plant is found in a neat booklet which was distributed by the company, showing views of plants which have already installed this system. Pug mills are being driven by this power as well as dry pans and glaze mills.

The use of brick for the construction of mantels and fire places in the home was shown by the American Home Fireplace Co., the plant of which is at Zanesville, O. They were represented in the exhibit hall.

One of the prettiest catalogues given delegates at the Louisville convention was that of the H. B. Sackett Screen & Chute Co., of Chicago, Ill. The firm are designers and manufacturers of mine, ore, and industrial cars, portable railways, turntables, buckets, elevators and revolving screens. All of which are shown in their new catalogue.

A catalogue of nearly 100 pages was distributed in the convention hall by the representatives of the Scott-Madden Iron Works Co., of St. Louis, Mo., the works of which are at Rushville, Ind., and Keokuk, Ind. Their No. 1 catalogue deals almost exclusively with the machinery used in the manufacturing of brick and other clay products, all of which makes the issue a valuable one for clay workers to possess.

The John C. Boss Co., of Elkhart, Ind., controlling a new system of brick burning, was represented at the Louisville convention. Mr. Boss, the inventor of this system, is a well known brick manufacturer, and in writing about his work to the trade says: The "Boss System" of burning brick was at first considered a startling innovation, but its power of doing such wonderful things in fuel and labor saving, as well as better burned brick, on all kinds of brick-kilns, has entitled it to recognition and brick-makers have come to look upon it as a blessing, and it stands alone in its class without a competitor.

Milton F. Williams, president of the Williams Patent Crusher & Pulverizer Co., of St. Louis, Mo., was at the convention and was busy telling about the firm's new deck sweeper, which is "just out." The company has been in business 25 years and has kept pace with the development of the clay industry.

The Bonnot Company of Canton, O., was represented at the Louisville convention by A. A. Oldham, A. W. Aylesworth and R. G. Smith. These representatives had quite an honor conferred upon them by the management of the Seelbach Hotel at Louisville, for they were given the quarters in the hotel always occupied by the governor of Kentucky when he is in Louisville. The representatives were giving out utility souvenirs in the shape of a leather bill book, which was greatly appreciated.

The Youngren kiln was an interesting feature in the special exhibit room of the C. W. Raymond Co., of Dayton, O., manufacturers of all kinds of machinery for brick and clay plants. This model is five feet long, and represents a ten-chamber compartment kiln, showing in every detail the construction and operation by which it conclusively demonstrated its saving over the old type. A number of samples of impervious face brick and vitrified pavers were shown, all of which were burned in the Youngren type kiln, the most notable specimens being those from the plants of the Columbus & Hocking Clay Construction Co., and the Alton Paving Brick Co.

In connection with the Raymond Co.'s exhibit the United States Tile Co., of Parkersburg, W. Va., showed a number of samples of their various styles of roofing tile illustrating the advantages obtained in their use, which are products of Raymond machinery and driers.

As a matter of curiosity the Raymond Company exhibited several convict made brick from the United States prison, Ft. Leavenworth, Kan., which are undoubtedly made by men originally in all walks of life, bankers, corporation presidents, etc.

Other exhibitors were Alsey Brick & Tile Co., Alsey, Ill.; Murphysboro Paving Brick Co., Murphysboro, Ill.; Wichita Falls Brick & Tile Co., Wichita Falls, Tex.

A working model of the Berg dry press attracted much attention and created a busy hum about the exhibit room. It was operated by a one-sixth h. p. direct current motor.

The "New Home" number of the Claycrafter was distributed among the brick makers, illustrating the new Raymond factories as well as the officers of the company, heads of departments and district managers, being an excellent "get acquainted" issue.

## BRICK SALESMEN'S ASSOCIATION.

Building brick salesmen of the United States will develop plans during the year which will result in the formation of the American Brick Salesmen's Association at Chicago in 1911. Not many brick manufacturers were aware of the plans of the salesmen at the Louisville convention, and not until the closing of the gathering did the news leak out.

It is the opinion of the salesmen that inasmuch as all other branches of the brick industry are banded together, the selling end should also have an organization, and that as a result of such an organization considerable good would result. It is also planned to have the meeting of the salesmen at the same time as the manufacturers.

As a matter of fact, the prime object of the salesmen's association would be the advancement of this branch of the business. At the same time the new association would aim to have the manufacturers make a building brick that could be kept in stock in sufficient quantities to warrant immediate delivery.

It has been pointed out by one salesman that where a manufacturer has probably 50 or more shades of brick and a stock of millions, it is impossible to make quick deliveries on some orders.

Eastern brick salesmen are very much interested in the formation of the Salesmen's Association. Within a few weeks the proposition will take firmer root and the plan will be boomed throughout the year.

## SEWER WORK IN SAN FRANCISCO.

San Francisco is laying hopeful plans for the future, on the prospect of getting the Panama-Pacific Exposition. In the meantime several sewer jobs have been let, but owing to the weather progress is slow on the work at hand. The work has also been held up by the failure of a contractor working on several large orders. N. Clark & Sons are furnishing a number of big sewer jobs and have several new ones in view.

## ROSTER OF THE CONVENTION.

1. W. P. BLAIR, Sec'y. N. P. M. A., Terre Haute, Ind.
2. M. J. BANNON, P. Bannon Sewer Pipe Co., Louisville, Ky.
3. CHAS. J. DECKMAN, Deckman-Duty B. Co., Cleveland, O.
4. McC. EVERHARD, Everhard Co., Massillon, O.
5. CHAS. A. HOSHOUR, Cleveland Vit. B. Co., Okla. City, Okla.
6. H. JEROME LEE, Fiske & Co., New York City, N. Y.
7. J. E. RANDALL, The Clay-Worker, Indianapolis, Ind.
8. W. P. GRATH, The Illinois Sup. & Con. Co., St. Louis, Mo.
9. G. W. KNEISLY, E. Allen Am. Mang. Steel Co., Chicago, Ill.
10. A. W. AYLESWORTH, The Bonnot Co., Canton, O.
11. THEO. A. RANDALL, Sec'y. N. B. M. A., Indianapolis, Ind.
12. WM. SIMPSON, Frost Mfg. Co., Galesburg, Ill.
13. C. A. BLOOMFIELD, Metuchen, N. J.
14. T. C. LUNDY, Lonsdale Face Brick Co., Knoxville, Tenn.
15. EBEN RODGER, Alton Brick Co., Alton, Ill.
16. JOHN C. BOSS, John C. Boss Co., Elkhart, Ind.
17. JAMES R. GRIFFIS, Deckman-Duty Brick Co., Cleveland, O.
18. SPENCER M. DUTY, Deckman-Duty Brick Co., Cleveland, O.
19. F. M. BRADY, Cleveland Brick & Clay Co., Cleveland, O.
20. SAMUEL R. BUSEY, Baltimore Brick Co., Baltimore, Md.
21. R. B. BURR, Frink Pyrometer Co., Lancaster, O.
22. R. L. FRINK, Frink Pyrometer Co., Lancaster, O.
23. J. H. COLEY, Davenport Locomotive Works, Davenport, Ia.
24. E. M. HALL, Davenport Locomotive Works, Davenport, Ia.
25. JNO. W. SIBLEY, Sibley Menge B. & C. Co., Birmingham, Ala.
26. WALTER S. ADAMS, Hydraulic Brick Co., Louisville, Ky.
27. J. PARKER B. FISKE, Fiske & Co. (Inc.), Boston, Mass.
28. A. SNYDER, A. Snyder & Co., Portage La Prairie, Man.
29. F. J. FRINK, The Frink Pyrometer Co., Lancaster, O.
30. J. G. BARBOUR, Metropolitan Paving Brick Co., Canton, O.
31. CHAS. A. GOULD, Main Belting Co., Chicago, Ill.
32. H. J. VCTAW, J. D. Fate Co., Plymouth, O.
33. J. W. ROBB, Clinton Paving Brick Co., Clinton, Ind.
34. O. N. TOWNSEND, T. B. Townsend B. & C. Co., Zanesville, O.
35. C. P. MAYER, C. P. Mayer Brick Co., Bridgeville, Pa.
36. MARION W. BLAIR, N. P. B. M. A., Indianapolis, Ind.
37. H. C. MOATS, Deckman-Duty Brick Co., Cleveland, O.
38. W. A. WHITE, Big Four Clay Co.,
39. C. C. BARR, Barr Clay Co., Streator, Ill.
40. C. FRED FOLEY, Independent Powder Co., St. Louis, Mo.
41. W. REECE, Sawyer Belting Co., Cleveland, O.
42. E. F. DECKERT, Sawyer Belting Co., Cleveland, O.
43. C. G. MACK, Sawyer Belting Co., Cleveland, O.
44. P. BANNON, JR., Ky. Vitrified Brick Co., Louisville, Ky.
45. H. C. KLEYMEYER, Standard Brick Mfg. Co., Evansville, Ind.
46. T. BISHOP, Southern Brick & Tile Co., Louisville, Ky.
47. ISAAC TYLER, Owen Tyler, Louisville, Ky.
48. C. D. ERLEWINE, Marion Mch., Fdry. & Supply Co., Marion, Ind.
49. ARTHUR D. ROGERS, Rogers & Manson, Boston, Mass.
50. R. C. PENFIELD, American Clay Machinery Co., New York.
51. L. W. PENFIELD, American Clay Mchy. Co., Willoughby, O.
52. R. O. PERROTT, American Clay Mchy. Co., Bucyrus, O.
53. J. D. WHITTAKER, American Clay Mchy. Co., Bucyrus, O.
54. H. L. HARMON, American Clay Mchy. Co., Bucyrus, O.
55. G. C. STOLL, American Clay Mchy. Co., Grant Park, Ill.
56. W. W. WHITING, American Clay Mchy. Co., Bucyrus, O.
57. E. W. DOW, American Clay Mchy. Co., Bucyrus, O.
58. S. J. HEAFIELD, American Clay Machinery Co., Bucyrus, O.
59. E. J. RUTLAND, American Clay Machinery Co., Bucyrus, O.
60. J. P. MARTIN, American Clay Machinery Co., Bucyrus, O.
61. C. B. SHARER, American Clay Machinery Co., Bucyrus, O.
62. F. S. NAUGLE, American Clay Machinery Co., Bucyrus, O.
63. F. H. ESSIG, American Clay Machinery Co., Bucyrus, O.
64. W. R. CUNNINGHAM, American Clay Machinery Co., Bucyrus, O.
65. F. L. HOPLEY, American Clay Machinery Co., Bucyrus, O.
66. T. L. MYERS, American Clay Machinery Co., Bucyrus, O.
67. A. C. MYERS, American Clay Machinery Co., Bucyrus, O.
71. JOHN G. MOREY, West Point Brk. & Lbr. Co., Louisville, Ky.
72. J. CROW TAYLOR, Louisville, Ky.
73. J. W. A. MYERS, Point Brick & Lumber Co., West Point, Ky.
74. R G. EISENHART, Consolidated Brick Co., Horseheads, N. Y.
75. THOMAS C. MOULDING, Thomas Moulding Co., Chicago, Ill.
76. ROBT. C. MITCHELL, Cleveland Builders' Sup. Co., Cleveland, O.
77. ALBERT D. KLEIN, J. Sunderland Bros. Co., Omaha, Neb.
78. OWEN TYLER, Louisville, Ky.
79. RALPH SIMPKINS, Hydraulic Press Brick Co., St. Louis, Mo.
80. ALBERT KEENY, Board Local Improvement, Chicago, Ill.
81. JOHN MINWEGAN, Board Local Improvement, Chicago, Ill.
82. H. B. HOLMES, Chicago, Ill.
83. CHAS. BONNER, Bonner & Marshall Co., Chicago. Ill.
84. A. E. HILDER, Sidney Brick & Tile Co., Sidney, Mani.
85. CHAS. A. BONNER, Bonner & Marshall Co., Chicago, Ill.
86. HARRY C. PODOSKY, Bonner & Marshall Co., Chicago, Ill.
88. PHILIP RAIMER, Newburgh Brick & Clay Co., Bedford, O.
89. L. M. RICE, JR., National Roofing Co., Louisville, Ky.
90. J. H. CALDWELL, Edward Orton, Jr., Columbus, O.
91. AL. PIERS, Louisville Herald.
92. K. PFEIFFER, Louisville, Ky.
93. E. P. LIPPINCOTT, Freeport Clay Products Co., Freeport, Pa.
94. C. W. LANSING, Brick and Clay Record, Chicago, Ill.
95. W. C. BARNHART, JR., Wooster Shale Brick Co., Wooster, O.
96. J. McGEATH, Fiske & Co.
97. E. J. BURKE, Burke Brick Co., Rochester, N. Y.
98. O. C. SYLVESTER, Mathews Grav. Carrier Co., St. Paul, Minn.
99. M. E. GREGORY, Brick, Terra Cotta & Tile Co., Corning, N. Y.
100. C. W. RAYMOND, JR., The C. W. Raymond Co., Dayton, O.
101. C. W. RAYMOND, The C. W. Raymond Co., Dayton, O.
102. J. P. WILLIAMS, The C. W. Raymond Co., St. Louis, Mo.
103. A. A. VAUGHN, The C. W. Raymond Co., Millidgeville, Ga.
104. GEO. W. NUSHAW, The C. W. Raymond Co., Dayton, O.
105. A. J. AUBREY, Bessemere Limestone Co., Youngstown, O.
106. W. H. HILL, Murphysboro Paving Brick Co., Murphysboro, Ill.
107. M. G. MATTESON, Purington Paving Brick Co., Galesburg, Ill.
108. E. T. LEWIS, E. T. Lewis Co., Nashville, Tenn.
109. T. P. LEWIS, E. T. Lewis Co., Nashville, Tenn.
110. A. R. ROOT, Chambers Bros. Co., Philadelphia, Pa.
111. D. WARREN DE ROSAY, Corry Brick & Tile Co., Corry, Pa.
112. W. L. SNYDER, Brazil Clay Co., Brazil, Ind.
113. R. E. SUNDERLAND, Sunderland Bros. Co., Omaha, Neb.
114. T. P. CUTHBERT, Toronto Fire Clay Co., Pittsburg, Pa.
115. J. B. NICHOLSON, Toronto Fire Clay Co., Steubenville, O.
116. C. L. RORICK, The Arnold-Creager Co., New London, O.
117. FRANK McCLELLAN, The Arnold-Creagor Co., New London, O.
118. H. H. ITTNER, Prince Albert, Sask,
119. M. H. LEATHERMAN, Wadsworth, B. & T. Co., Wadsworth, O.
120. R. C. BENNETT, Wellington Machine Co., Wellington, O.
121. R. S. RICHARDS, Atlas Car & Mfg. Co., Cleveland, O.
122. L. W. HARSTON, Atlas Car & Mfg. Co., Cleveland, O.
123. E. C. HEGENWALD, Hoosier Brick Co., New Albany, Ind.
124. EARL E. LITZ, Allentown Brick Co., New York City.
125. J. E. MINTER, R. B. Small Co., Columbus, Ga.
126. C STEWART MILLER, Columbia Trust Co., Cloverport, Ky.
127. A. S. REID, A. S. Reid & Co., Newark, N. J.
128. CHAS. T. HARRIS, Fiske & Co., New York City.
129. C. H. BRAY, Western Clay Mfg. Co., Helena, Mont.
130 WM. HANLEY, Bradford Pressed Brick Co., Bradford, Pa.
131. E. F. KNIGHT, Bradford Pressed Brick Co., Bradford, Pa.
132. J. T. UNDERWOOD, Columbus & Hocking B. Mfg. Co., Columbus.
133. P. A. SMITH, A. F. Smith Co., New Brighton, Pa.
134. H. HAIGH, Catskill, N. Y.
135. L. HAIGH, Catskill, N. Y.
136. CHAS. H. KIPLER, Saginaw Pav. & Brick Co., Saginaw, Mich.
137. ALFRED YATES, Shawmut Pav. Brick Co., Shawmut, Pa.
138. HARRY L. COX, Marion Steam Shovel Co., Marion, O.
139. R. D. CULVER, Wabash Clay Co., Veedersburg, Ind.
140. J. B. WILCOX, Alliance Clay Product Co., Alliance, O.
141. J. R. COPELAND, Copeland-Inglis Shale Brick Co., Birmingham, Ala.
142. C. E. CROOK, Bessemer Limestone Co., Youngstown, O.
143. JACOB RAHN, Alliance Clay Product Co., Alliance, O.
144. CHAS. M. CROOK, Bessemer Limestone Co., Youngstown, O.
145. H. W. KATTERJOHN, Katterjohn Brick Co., Paducah, Ky.
146. MERLE SIDENER, N. P. B. M. A.,
147. D. C. MEEHAN, The Pyrous Process Co., Columbus, O.
148. W. T. BLACKBURN, Paris, Ill.
149. C. C. BLAIR, Bessemer Limestone Co., Youngstown, O.
150. R. L. QUEISSER, Queisser-Bliss Co., Cleveland, O.
151. J. M. ADAMA, Ironclay Brick Co., Columbus, O.
152. C. H. FORRY, Hanover Red Press Brick Co., Hanover, O.
153. GEORGIA A. BUCKLEY, Buckley Brick Co., Montrose, Colo.
154. W. H. HOAGLAND, Claycraft Brick Co., Columbus, O.

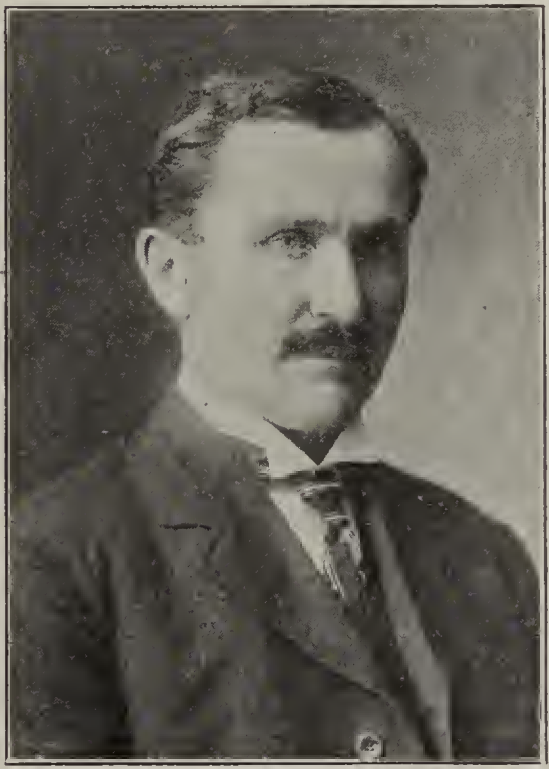
F. W. Bennett, of the Wellington Machine Co., Wellington, O.

H. Haigh, Inventor of the Haigh Continuous Kiln, Catskill, N. Y.

E. R. Frazier, Veteran Salesman of Chambers Bros. Co., Phila. and Chi.

Wilbur Reese, of the Sawyer Belting Co., Cleveland, O.

Frank N. Reid, Head of the Success Brick Machinery Co., Memphis, Tenn.



John C. Boss (The Boss System), Elkhart, Ind.

Anton Berg, Head of the Berg Mfg. Co., Toronto, Ont.

C. D. Erlewine, of the Marion Machine Foundry & Sup. Co., Marion, Ind.

A. C. Heck, Sales Manager of the Buckeye Traction Ditcher Co., Findlay, O.

155. S. M. GOULD, Fee Fee Brick Co., St. Louis, Mo.
156. HERMANN L. MATZ, S. S. Kimbell Brick Co., Chicago, Ill.
157. E. K. CORMACK, Wisconsin Lime & Cement Co., Chicago, Ill.
158. JOHN J. MORONEY, Chicago Brick Machinery Co., Chicago, Ill.
159. R. D. LINDSAY, Denver Pressed Brick Co., Denver, Colo.
160. J. H. CHAMBERS, Chambers Bros. Co., Philadelphia, Pa.
161. F. W. BUTTERWORTH, Western Brick Co., Danville, Ill.
162. W. C. ALWINE, Alwine Bros., New Oxford, O.
163. J. A. McDERMOTT, Barboursville Brick Co., Barboursville, Ky.
164. G. A. ANDERSON, The J. D. Fate Co., Plymouth, O.
165. J. M. JENKINS, Jenkins Brick Co., Montgomery, Ala.
166. C. E. JEWETT, Hocking Valley Fire Clay Co., Nelsonville, O.
167. C. J. PETERSON, Weller Mfg. Co., Chicago, Ill.
168. L. L. STEPHENSON, Birmingham, Ala.
169. G. E. LUCE, Tate, Jones & Co., Chicago, Ill.
170. GEO. M. KRICK, Krick, Tyndall & Co., Decatur, Ind.
171. S. A. McCOLLUM, McCollum Brick Co., Louisville, Ky.
172. G. J. PARKE, V. H. Parke Son Co., Decatur, Ill.
173. F. G. WHITE, Jenkins & Reynold Co., Chicago, Ill.
174. J. T. HARRINGTON, Northern Brick & Sup. Co., St. Paul, Minn.
175. ALBERT POTTS, C. & A. Potts & Co., Indianapolis, Ind.
176. GEORGE POTTS, C. & A. Potts & Co., Indianapolis, Ind.
177. ANTHONY ITTNER, A. Ittner Brick Co., St. Louis, Mo.
178. J. F. SMITH BRICK CO., Omaha,
179. J. H. ZELLER, Brazil Clay Co.,
180. E. T. LEWIS, E. T. Lewis Co., Nashville, Tenn.
181. D. L. WADSWORTH, Ohio Ceramic Engineering Co.
182. W. O. COPELAND, Shawnee Flash Brick Co., Columbus, O.
183. C. H. HORTON, H. Martin Brick Mach. Mfg. Co., Lancaster, Pa.
184. A. W. SNIDER, Marion Mach. Fdy. & Sup. Co., Marion, Ind.
185. A. C. VICARY, The Automatic Shovel Co., Lorain, O.
186. FRED TALBOT, Laclede-Christy Co., St. Louis, Mo.
187. ADAM BUCH, Peebles Pav. Brick Co., Portsmouth, O.
188. F. MANNING, Peebles Pav. Brick Co., Portsmouth, O.
189. C. F. SHELLENBERGER, Shellenberger & Smith, Philadelphia, Pa.
190. E. R. DILLEHAY, Dillehay Brick Co., Danville, Ky.
191. W. W. ITTNER, Ittner Brick Co., Belleville, Ill.
192. J. R. RANDOLPH, Ruston Brick Works, Ruston, La.
193. JOHN McKENZIE, Electric Brick Co., Augusta, Ga.
194. W. M. DISHMAN, Barbourville B. & T. Co., Barbourville, Ky.
195. ELLIOTT S. MORSE, Potomac Brick Co., Washington, D. C.
196. W. D. RICHARDSON, Ohio Mining & Mfg. Co., Columbus, O.
197. F. W. WOOD, Adams Brick Co., Indianapolis, Ind.
198. GEORGE J. SCHWARZ, Milwaukee,
199. WM. J. WATKINS, Wm. J. Watkins Co., Louisville, Ky.
200. J. M. VOLLMER, Builders' Exchange, Louisville, Ky.
201. JOHN RINGLE, Ringle Brick Co., Wausau, Wis.
202. CHAS. H. FRANK, Athens & Nelsonville Brick Co., Columbus, O.
203. CARROLL CONNETT, St. Joseph Pressed Brick Co., St. Joseph, Mo.
204. FRANK A. WHITE, Easton Brick & Tile Co., Easton, Md.
205. GEO. E. SLY, American Architect, New York, N. Y.
206. GEO. C. VIDETTO, American Pulverizer Co., St. Louis, Mo.
207. GEO. C. VIDETTO, American Pulverizer Co., St. Louis, Mo.
208. C. F. RABBIETT, Orenstein-Arthur Koppel Co., Chicago, Ill.
209. J. F. LEONARD, Cleveland, O.
210. B. C. PIERCE, Presbrey Stove Lining Co., Taunton, Mass.
211. DONNELLY WEVER, Moores, Coney Co., Cincinnati, O.
212. P. B. BELDON, Canton Pressed Brick Co., Canton, O.
213. HENRY B. LOVELAND, Ellicott Brick Co., Jewettville, N. Y.
214. J. M. HOSKINS, Terre Haute Vit. Brick Co., Terre Haute, Ind.
215. K. E. LYMAN, Jamestown Paint & Varnish Co., Jamestown, Pa.
216. W. N. DURBIN, Anderson F. & M. Works, Anderson, Ind.
217. JAMES P. CROWELL, J. B. Crowell & Son, Walkill, N. Y.
218. W. C. CROLIUS, McLaughlin Building Mat'l Co., Chicago, Ill.
219. V. F. OUTLAND, Standard Dry Kiln Co., Indianapolis, Ind.
220. J. M. LEACH, Kokomo, Ind.
221. W. W. WHITEACRE, Whiteacre Fireproofing Co., Waynesburg, O.
222. JOHN R. BELL, Huntingdon, Pa.
223. G. A. GUIGNARD, Guignard Brick Works, Columbia, S. C.
224. J. B. HAMMOND, Bolivar Face Brick Co., Bolivar, Pa.
225. I. L. HAMMOND, Bolivar Face Brick Co., Bolivar, Pa.
226. A. J. DUNN, Chase Foundry & Mch. Wks., Columbus, O.
227. E. C. CLARK, Kittanning Brick & F. C. Co., Pittsburg, Pa.
228. CARL CAPPEL, Central Brick Co., Pittsburg, Pa.
229. JOHN R. ROOT, Terre Haute Vit. Brick Co., Terre Haute, Ind.
230. J. C. KELLEY, Terre Haute Vit. Brick Co., Terre Haute, Ind.
231. W. H. SACHS, Manufacturers' Equipment Co., Dayton, O.
232. D. W. LOVEJOY, A. B. Meyer Co., Indianapolis, Ind.
233. V. E. SIMPERS, Westinghouse E. & M. Co., Pittsburg, Pa.
234. A. A. OLDHAM, The Bonnot Co.,
235. H. F. TYLER, Kentucky Coke Co.,
236. R. H. RUTHERFORD, Oakland Pressed B. Co., Zanesville, O.
237. BEN S. FISHER, Columbus B. & T. C. Co., Union Furnace, O.
238. W. A. McCALL, Dealers' Record,
239. E. H. VITALIUS, American Blower Co., Detroit, Mich.
240. W. T. RICHARDS, Combination Brick Co., Detroit, Mich.
241 WM. F. KNABB, Combination Brick Co., Detroit, Mich.
242. W. N. ALDERMAN, Athens Brick Co., Athens, O.
243. JOHN W. HALL, Westport Paving Brick Co.
244. D. H. PADGETT, Westport Paving Brick Co.
245. C. H. FRANK, Walker & Frank Brick Co., Detroit, Mich.
246. H. S. BENNETT, Wellington Machine Co., Wellington, O.
247. C. D. SMITH, Auburndale Brick Works, Toledo, O.
248. DAVIS BROWN, H. Brewer & Co., Tecumseh, Mich.
249. H. ATHERTON, Mfg. & Supply Co., Boyne City, Mich.
250. J. A. WILLIAMS, Scranton, Pa.
251. C. M. McMILLAN, Medora Shale Brick Co., Medora, Ind.
252. M. V. TRAUTMAN, Medora Shale Brick Co., Medora, Ind.
253. WM. F. THOMAS, Mosaic Tile Co., Buffalo, N. Y.
254. H. R. KENDALL, West Point Brick Co., Louisville, Ky.
256. HARRY G. KIGER, Acme Brick Co.,
255. C. H. BRYAN, Lonyo Brick Co., Detroit, Mich.
257. G. T. DICKOVER, Geo. T. Dickover & Son, Wilkesbarre, Pa.
258. W. S. DICKOVER, Geo. T. Dickover & Son, Wilkesbarre, Pa.
259. GEO. B. WAITE, Geo. T. Dickover & Son, Parsons, Pa.
260. E. P. ELZEY, The U. S. Tile Co., Parkersburg, W. Va.
261. J. ELLIS HARVEY, Center Brick & Clay Co., Orviston, Pa.
262. W. M. HODGES, Tuna Valley Press Brick Co., Bradford, Pa.
263. G. W. FOSTER, Pearl Clay Products Co., Bradford, Pa.
264. C. E. FOSTER, Kittanning Clay Products Co., Bradford, Pa.
265. J. E. SCHUESLER, N. Collins Shale Brick Co., Buffalo, N. Y.
266. J. DIETSCHLER, N. Collins Shale Brick Co., Buffalo, N. Y.
267. HENRY BENDER, N. Collins Shale Brick Co., Buffalo, N. Y.
268. WM. GRAAP, N. Collins Shale Brick Co., Buffalo, N. Y.
269. JACOB HENSELER, N. Collins Shale Brick Co., Buffalo, N. Y.
270. S. C. BRUSH, Brush Bros., Buffalo,
271. CHAS. C. STRATTON, Alumina Shale Brick Co., Bradford, Pa.
272. W. M. BURCHFIELD, Rochester Comp. B. Co., Rochester, N. Y.
273. EDWIN BROCKWAY, Brockway Brick Co., Brockway, N. Y.
274. H. H. FREESE, E. M. Freese & Co.,
275. B. E. PLACE, E. M. Freese & Co.,
276. A. J. FREESE, E. M. Freese & Co.,
277. E. L. HESS, E. M. Freese & Co.,
278. W. H. GIBB, Brown Instrument Co., Pittsburg, Pa.
279. JOHN GOETZ, Goetz Pressed Brick Co., New Albany, Ind.
280. CALVIN B. ROSS, Municipal Jour. & Engineer, Columbus, O.
281. D. J. KENNEDY, Darlington Brick & Min. Co., Pittsburg, Pa.
282. C. W. SEARIGHT, Darlington B. & Min. Co., Philadelphia, Pa.
283. H. E. STEFFLER, Steffler & Brown, Pittsburg, Pa.
284. H. D. LOUNDSBURY, Fredenburg & Loundsbury, New York.
285. C. C. MURRAY, Reynoldsville B. & T. Co., Reynoldsville, Pa.
286. D. MAC DONALD, Dubois & Butler Brick Co., Dubois, Pa.
287. W. R. HASSELBACK, Dubois & Butler Brick Co., Dubois, Pa.
288. G. C. WEBB, Darlington B. & M. Co., Pittsburg, Pa.
289. A. E. LASELY, Kentucky Vitrified Brick Co., Louisville, Ky.
290. O. W. KETCHAM, Philadelphia, Pa.
291. W. B. HERBERT, W. G. Bush & Co., Nashville. Tenn.
292. W. H. HERBERT, W. G. Bush & Co., Nashville, Tenn.
293. THOS. L. HERBERT, JR., W. G. Bush & Co., Nashville, Tenn.
294. H. R. BEEGLE, Beaver Clay Mfg. Co., New Galilee, O.
295. N. L. UPSON, U. S. Tile Co., Parkersburg, W. Va.
296. HENRY K. LEIGHOW, Ky. Fire Brick Co., Louisville, Ky.
297. J. W. CANDLER, Cleveland, O.
298. F. B. HOLMES, F. B. Holmes & Co., Detroit, Mich.
299. L. G. KILBOURNE, Columbus B. & T. Co., Columbus, O.
300. G. B. LUCKETT, Crawfordsville Shale B. Co., Crawfordsville, Ind.
301. H. W. HOLMES, Puritan Brick Co., Detroit, Mich.
302. J. POST, W. & J. Post, East Williston, N. Y.
303. C. H. DOAN, Nelsonville Brick Co., Columbus, O.
304. R. L. LEWIS, Wassall Brick Co., Glouster, O.
305. JOHN A. TOPPING, Barber Asphalt Co., Chicago, Ill.
306. WM. F. SCOTT, Scott Madden Iron Works, Rushville, Ind.
307. S. A. WILLIAMS, Sackett Screen & Shute Co., Chicago, Ill.
308. F. R. CARTER, Peoria, Ill.
309. H. W. CARTER, Cook & Brown Lime Co., Oshkosh, Wis.

310. R. D. FULCHER, Fulcher Brick Co., Nashville, Tenn.
311. JOE P. FULCHER, Fulcher Brick Co., Nashville, Tenn.
312. BARNEY TEIGLER, Teigler Bros., Dayton, O.
313. M. F. WILLIAMS, Williams Crush. & Pul. Co., St. Louis, Mo.
314. J. L. SCHOLL, The Mfg. Equipment Co., Dayton, O.
315. FRED W. ALHORN, Alhorn & Waller, Morganfield, Ky.
316. H. S. HAMILTON, The McArthur Brick Co., McArthur, O.
317. L. W. SPRAGUE, The McArthur Brick Co., McArthur, O.
318. D. D. DEEDS, The Auto Shovel Co., Lorain, O.
319. J. A. DOBBEN, Dobben & Sullivan, Boston, Mass.
320. H. J. FLOOD, Chisholm Boyd & White Mchy. Co., Chicago, Ill.
321. A. J. KANTZ, Chisholm Boyd & White Mchy. Co., Chicago Ill.
322. J. T. GUNNISS, Anaconda C. M. Co., Anaconda.
323. J. J. KOCH, St. Louis, Mo.
324. E. R. FRAZIER, Chambers Brothers Co., Chicago, Ill.
325. W. R. BENNETT, Acme Pressed Brick Co., Ft. Worth, Tex.
326. No name.
327. ROBERT L. CLARK, Clark Mfg. Co., Owensboro, Ky.
328. J. E. CLARK, Clark Mfg. Co., Ashbyburg, Ky.
329. GEO. W. LEISCHER, Nat. Pressed Brick Co., Mascoutah, Ill.
330. C. W. MARTIN, Wise County Brick Co., Fort Worth, Tex.
331. J. W. HENSLEY, Indianapolis.
332. WM. M. TAYLOR, Main Belting Co., Chicago, Ill.
333. CHAS. W. DENISON, Delaware Clay Mfg. Co., Delaware, O.
334. GEO. W. DENISON, Ohio Clay Company, Cleveland, O.
335. ROSS C. PURDY, Ohio State Univ.,
336. JOHN ANDRES, Standard Brick Co., Evansville, Ind.
337. FRED. C. KLUTEY, Kleymeyer & Klutey, Henderson, Ky.
338. H. KLEYMEYER, Kleymeyer & Kluety, Henderson, Ky.
339. A. F. KLEYMEYER, Southern Brick & Tile Co., Louisville, Ky.
340. H. HERPEL, Southern Brick & Tile Co., Louisville, Ky.
341. ELLIS LOVEJOY, Richardson-Lovejoy Eng. Co., Columbus, O.
342. M. M. BUSHONG, Standard Vit. Brick Co., Coffeyville, Kan.
343. ELISHA K. KANE, Kushequa Brick Co., Kushequa, Pa.
344. L. E. RODGERS, L. E. Rodgers Eng. Co., Chicago, Ill.
345. J. O. TRAUTWEIN, L. E. Rodgers Eng. Co., Chicago, Ill.
346. H. E. GRUINN, Edgar Allen Mfg. Steel Co., Chicago, Ill.
347. GEO. C. BERRY, Edgar Allen Mfg. Steel Co., Chicago, Ill.
348. T. E. BERRY, George O. Berry, Columbus, Ga.
349. JOHN ELCOCK, Jacksonville, Fla.
350. W. E. DUNWODY, Standard Brick Co., Marion, Ga.
351. R. D. McMANIGAL, McManigal Grateless Fur., Logan, O.
352. CHRIS. STEADMAN, Richmond Brick Co., Green Ridge, N. Y.
353. H. C. ROBINSON, Richmond Brick Co., Green Ridge, N. Y.
354. J. A. BISHOP, West Point Brick & Lumber Co., West Point, Ky.
355. D. COBB, Campville Brick Co., Jacksonville, Fla.
356. AARON PHILLIPS, Bowling Green,
357. J. B. ALEXANDER, Alexander Brick Co., Cadiz, Ky.
358. R. A. MASTERSON, Manchester, O.
359. FRED B. ADAMS, Adams Brick Co., Indianapolis, Ind.
360. H. B. WELLS, Keystone Clay Prod. Co., Greensburg, Pa.
361. J. H. DONAHUE, JR., North. Brick & Supply Co., St. Paul, Minn.
362. F. M. FOSTER, Kittanning City Prod. Co., Kittanning, Pa.
363. GEO. J. WALTER, Chalsworth, Ill.
364. J. W. FORSYTHE, Riverside Fuel & Supply Co., Fremont, O.
365. W. K. SEIRP, Southern Brick & Tile Co., Louisville, Ky.
366. E. M. AYERS, Central Silica Co., Lanesville, O.
367. W. A. HULL, Brown, Hull & Co., Chattanooga, Tenn.
368. C. B. VER NOOY, Ill. Brick Co., Chicago, Ill.
369. LUNSFORD P. HALDEMAN, Ky. Fire Brick Co., Portsmouth, O.
370. S. A. BARLEY, Steelton & Hbg. Co., Steelton, Pa.
371. S. B. DOBBS, S. B. Dobbs, Philadelphia, Pa.
372. R. C. BURTON, T. B. Townsend Brick Co., Zanesville, O.
373. D. H. APPLEGATE, Crescent Face Brick Co., Red Bank, N. J.
374. D. H. APPLEGATE, Crescent Face Brick Co., Red Bank, N. J.
375. RAY G. SMITH, The Bonnot Company, Kansas City.
376. THEO. C. SCHROIER, Fort Wayne,
377. EDWIN SWEENEY, Lehigh Portland Cement Co., Indianapolis.
378. W. W. MOSELEY, Bibb Brick Co., Macon, Ga.
379. LINCOLN S. MORRISON, Chambers Bros. Co., Atlanta, Ga.
380. A. F. GRAVE WALKER, C. W. Raymond Co., Columbus, O.
381. JAMES ANDERTON, C. W. Raymond Co., Dayton, O.
382. WM. H. FRANCIS, Coffeyville Vit. Brick Co., Cherryvale, Kan.
383. E. V. STURGEON, Nansemond R. B. & T. Co., Suffolk, Va.
384. E. F. GRAND, Pursell-Grand Co., Cincinnati, O.
385. WALTER PURSELL, Pursell-Grand Co., Cincinnati, O.
386. F. G. BOGK, Ricketson Min. Pt. Works, Milwaukee, Wis.
387. JOHN W. HAWN, Boston, Mass.
388. CHAS. W. SLAGLE, Burns & Russell, Baltimore, Md.
389. A. H. RUSSELL, Burns & Russell, Baltimore, Md.
390. FRANK J. NISCON, Paine & Niscon Sup. Dealers, Duluth, Minn.
391. D. H. DOWNEY, Murphysboro Pav. Brick Co., Murphysvoro, Ill.
392. A. V. BLEININGER, Ill. State University, Champaign, Ill.
393. G. H. BROWN, Pittsburg, Pa.
394. THOS. M. WILSON, Wilson Kiln & Dryer Co., Philadelphia, Pa.
395. G. W. McNEES, Kittanning Clay Mfg. Co., Kittanning, Pa.
396. C. G. STEVENSON, The Stevenson Co., Wellsville, O.
397. H. M. TEIGLER, Teigler Bros., Dayton, O.
398. FRANK POWERS, Grayson, Ky.
399. JOHN M. CRAWFORD, N. Ayer & Son, Chicago, Ill.
400. D. K. LYMAN, City Engineer, Louisville, Ky.
401. C. W. McFARLAND, Louisville, Ky.
402. L. R. FIGG, L. R. Figg & Co., Louisville, Ky.
403. C. W. PARSONS, Louisville, Ky.
404. JOSEPH NEVIN, Louisville Brick Co., Louisville, Ky.
405. W. H. CASKEY, Industrial Car Co., West Park, O.
406. CHARLES A. LANO, Salisbury, Md.
407. F. W. DENNIS, Norfolk, Va.
408. ORSON H. OGIER, Puritan Brick Co., Covington, Ky.
409. J. H. SIMPSON, Trimble Brick Co., Dayton, O.
410. J. W. FOWLER, Louisville, Ky.
411. J. H. MEAD, Onondaga Vit. Brick Co., Warners, N. Y.
412. W. H. H. ROGERS, Rochester B. & T. Co., Rochester, N. Y.
413. R. J. DAWSON, Cleveland, O.
414. J. W. BUCHER, New Comerstown, O.
415. G. H. TEFFT, W. S. Dickey Clay Mfg. Co., Kansas City, Mo.
416. F. H. ROBINSON, Ohio Ceramic Eng. Co., Cleveland, O.
417. J. M. BLAIR, J. M. Blair Brick Co., Cincinnati, O.
418. JOS. T. BLAIR, J. M. Blair Brick Co., Cincinnati, O.
419. C. E. McCAMMON, Cincinnati, O.
420. S. M. CHASE, Chase F. & M. Co., Columbus, O.
421. G. H. GANSON, Dover Fire Brick Co., Cleveland, O.
422. W. H. HAWKINS, Dover Fire Brick Co., Cleveland, O.
423. D. B. POTTER, Clarksburg, W. Va.
424. B. F. OCTTER, Coshocton Brick Co., Coshocton, O.
425. F. H. McDONALD, Grand Rapids, Mich.
426. AQUILLA WEBB, Louisville, Ky.
427. W. O. HEAD, Louisville, Ky.
428. GEORGE D. DALTON, Dalton Bros., Hopkinsville, Ky.
429. J. P. SHULL, Shull & Badger Brick Co., Butler, Pa.
430. R. DeFRANCE, Vanport Brick Co., Pittsburg, Pa.
431. LEVI MARSHALL, Jr., Consolidated B. Co., Horseheads, N. Y.
432. E. BRADDOCK, Somers Brick Co.,
433. FRANK GRIFFITH, Griffith & Randolph, Caine, Ill.
434. J. HART SIBLEY, Ogeechee Brick Co., Union Point, Ga.
435. J. P. STILLWAUGH, Hamilton Brick Co., Hamitlon, O.
436. JOSEPH MOOMAW, Shepfer & Moomaw, Sugar Creek, O.
437. D. G. MOOMAW, Shepfer & Moomaw, Stone Creek, O.
438. J. B. PRULLAGE, J. B. Prullage Brick Co., Vincennes, Ind.
439. JOHN A. RISCH, J. B. Prullage Brick Co., Vincennes, Ind.
440. S. P. STILLWAUGH, T. W. Spinks, Covington, Ky.
441. W. I. LYMAN, Detroit Face Brick Co., Detroit, Mich.
442. W. D. LeSEUER, W. D. & C. H. LeSeuer, Nashville, Tenn.
443. ROBERT DYAS, Huntsville Brick Co., Huntsville, Ala.
444. H. W. SMITH, Roessler-Hasslacher Chem. Co., E. Liverpool, O.
445. H. O. STEELE, J. C. Steele & Son Co., Statesville, N. C.
446. WM. MITCHELL, Mitchell Brick Co., Cincinnati, O.
447. S. MITCHELL, Mitchell Brick Co., Cincinnati, O.
448. W. F. BIUNDS, Mitchell Brick Co., Salisbury, Md.
449. A. G. LYON, Bowling Green, Ky.
450. H. H. FATE, The J. D. Fate Co.,
451. FRANK H. REID, South Memphis Brick Co., Memphis, Tenn.
452. H. C. BECKMAN, South Memphis Brick Co., St. Louis, Mo.
453. F. A. SMYTHE, The Auto Shovel Co., Lorain, O.
454. WM. D. GATES, American T. C. & Ceramic Co., Chicago, Ill.
455. J. S. McCANNELL, Milton Press Brick Works, Milton, Can.
456. W. BURGESS, Don Valley Brick Works, Toronto, Ont., Can.
457. F. L. WARNER, Standard Brick Co., Crawfordsville, Ind.
458. N. J. ENGEL, Bartlett Co., Detroit,
459. E. P. OGDEN, Zanesville, O.
460. WM. R. McKILLOP, Bartlett Co., Detroit, Mich.
461. JAMES E. DUNCAN, Jr., Donley Brick Co., Washington, Pa.
462. J. ALBERT LINK, Hudson Cement & Sup. Co., Baltimore, Md.
463. E. A. HERVEY, Hydraulic Press Brick Co., Brazil, Ind.
464. GEORGIA BUCKLEY, Montrose, Colo.
465. LEMON PARKER, Parker, Russell M. & M. Co., St. Louis, Mo.
466. S. W. STRATTON, Bureau of Standards, Washington, D. C.
467. JAMES E. HOWARD, Bureau of Standards, Washington, D. C.
468. GRANT DIBERT, Pittsburg, Pa.

## THE BURKE BRICK COMPANY.

An important bit of recent trade news is that relating to the reorganization of the New York Press Brick Co. into the new Burke Brick Co. This new corporation will devote itself entirely to the distribution of brick and will sell throughout the state of New York with the exception of New York City. The former manager of the New York Pressed Brick Co., Mr. E. J. Burke, is president of the new company and John F. Burke is secretary. The success of the new company is assured from the start as increased facilities and capital and the up-to-date organization will insure a volume of sales that is likely to far exceed that of the New York Pressed Brick Co., which last year amounted to a quarter million dollars. The name Burke will give much strength to the organization, as Mr. E. J. Burke has been prominently identified with the industry for many years and is one of the most popular and able men in the trade. He has been particularly prominent in connection with the work of the B. B. A., of which he was one of the organizers and most enthusiastic supporters. Mr. John F. Burke is equally popular in the trade and it is certain that he will become a leading factor in the brick business of the Empire State. Mr. E. J. Burke started in the brick business in 1890 at Canandaigua, N. Y., and has been actively engaged in the manufacture and selling of brick ever since. In 1894 his company merged with the Hydraulic Co. The new organization places the Burkes in the front rank and makes them a power in the distribution of brick products.

John F. Burke.

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## CHANGES IN LACLEDE-CHRISTY COMPANY.

Mr. William C. Morris has retired from the presidency of the Laclede-Christy Clay Products Company, and has been made chairman of the executive committee. Mr. Morris will spend some time in Southern California before resuming active duties. Mr. James Green is chairman of board of directors and Mr. John L. Green becomes president, Mr Richard D. Hatton, vice-president and treasurer, and Mr. Montague Lyon, secretary and counsel. The directors of the company are James Green, William C. Morris, John L. Green, Richard D. Hatton, Montague Lyon and Robert H. Miller.

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The Pawhuska (Okla.) Vitrified Brick Co. will expend another $20,000 on their brick plant, in the near future.

## MEN WHO SELL THE BRICK.

The most important meeting in the history of the National Builders' Supply Association is that to be held in Chicago February 21-22, at the Congress Hotel Annex. At this convention brick manufacturers will be represented in greater number than ever before, and the members of the Supply Association have urged that they be present, so far as the Building Brick Association members are concerned.

James W. Wardrop, secretary of the National Builders' Supply Association, was interested in building brick to such an extent that he took the proposition up with J. Parker B. Fiske, secretary of the "B. B. A.," and as a result a letter was sent out to "B. B. A." members urging them to join the Builders' Supply Association and take part in the convention. It is expected that many will accept this suggestion.

So fair and open-minded are the builders' supply men that they have opened their program to the brick interests and two important papers are scheduled under the title, "Building Brick as a Factor in National Conservation." One of these will be offered by E. F. Knight, of the Bradford (Pa.) Pressed Brick Co., and the other by R. C. Penfield.

Following are extracts from a letter sent out by Secretary Wardrop to brick manufacturers:

"Dear Mr. Brick Manufacturer:

"In conference with Mr. Parker Fiske, secretary-treasurer of the Building Brick Association of America, the writer cleared up a seeming misunderstanding as to the relationship existing between this association and the cement manufacturers, and of which, I understand, you have been fully advised.

"Did you ever stop to think of the possibilities of a close relationship with the building supply dealers of the United States through the national association? We have an active membership in 28 states, a vice-president in each of these states, nine leading dealers of the country form the National Executive Committee, and these work out the policy of the association.

"The cement manufacturers have as much to do with the making of our policies as the 'Sultan of Zulu,' nevertheless, while they have no part in the making of policy, they are wide-awake enough to see the possibilities of a close relation, and for two or three years have taken advantage of this opportunity to an extent that seems to make you brick manufacturers think that—'they run things.'

"I have only admiration for the cement men and for their progressiveness. They are on the job all the while, and believe the results well worth all the cost and more, and I wonder if that spirit, and the result, have not something to do with the conditon that nerved you to action in January last.

"Every opportunity open to the cement manufacturers is open to the brick manufacturers, no more, no less, and if you adopt a shortsighted policy and ignore your opportunity, don't blame anybody else for what happens to you!

"For three years we have been sincere in every hope held out; we proved this sincerity just as soon as one of your number had the courage to appear; we've made it as plain as day to your secretary, and now we are trying to make it plain to you! For your own sake, wake up! We cannot make you join, nor can we make you support this work. If we could, we would. All we can do is to put it up to you strong and plain. You must do the rest!

"The brick manufacturer who holds 'two-dollars-per-month' up against his eyeball, and refuses to listen to reason, simply hides the possibilities and opportunities we present, and leaves a clear field to those whom you are well able to match in every endeavor for success."

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## SATISFIED CUSTOMERS.

The Buckeye Traction Ditcher Co., of Findlay, O., have just secured a number of contracts from factories throughout the country for their celebrated digger. The No. 1 digger is an especial favorite, and the company are shipping one to the Northern Michigan Brick & Tile Co., at St. Ignace, Mich. The company feel that while their margin of profit is very small, they have the satisfaction of knowing that every customer feels he has made a good investment, and the machines make good wherever used.

The company issues a booklet giving information along these lines and those interested should send to the Company at Findlay, O., for one of these.

# CLEVELAND FOR N. P. B. M. A. HEADQUARTERS

## Representative Manufacturers Gather in National Convention to Discuss Important Matters for the Promotion of Paving Brick Interests

A most business-like and practical organization of clay men is the National Paving and Brick Manufacturers' Association. When these men gather at their annual convention it is purely a business proposition and they waste no time over unnecessary matters. Their sessions relate entirely to matters connected with the conduct of business affairs of the association.

On Tuesday afternoon, however, a public session of N. P. B. M. A. was held, which was attended by a number of parties interested in paving brick matters outside of the association. The trend of the discussion at this session was largely toward the publicity work of the association and regarding the promotion of the paving brick interests of the country.

A "New Member" made his bow for the first time at the convention of the association in the person of Mr. Merle Sidner, who has been acting during the past year as the publicity manager for the organization at his headquarters in Indianapolis. Mr. Sidner is a man of ability who has won a high reputation in his particular line of work and he has been a valuable addition to the working affairs of the brick association. His address on "Relations of the Association to the Public" was a masterly treatise on publicity and the value of advertising and evidenced his great familiarity with the subject and the enthusiasm with which he has undertaken the important work of the association.

NAT'L. PAVING BRICK M'F'RS. ASS'N.
LOUISVILLE, 1911.

N. P. B. M. A. Badge.

### The Officers Elected.

During the meeting a memorial was sent President Charles Crook at Youngstown, who resigned, and at the same time the hope of the association was extended that the health of Mr. Crook should be soon regained. The letter which was forwarded to Mr. Crook was signed by nearly the entire membership of the association at the Louisville convention.

Officers of the Paving Brick Association were elected as follows: President, Charles J. Deckman, of Deckman-Duty Co., Cleveland, O.; vice-president, J. W. Robb, Clinton, Ind.; treasurer, C. C. Barr, Streator, Ill.; secretary, Will P. Blair, Indianapolis, Ind.

The board of directors to serve during the fiscal year follows: Eben Rodgers, Alton, Ill.; C. C. Barr, Streator, Ill.; W. N. Alderman, Athens, O.; C. C. Blair, Youngstown, O.; G. O. French, Canton, O.; M. E. Gregory, Corning, N. Y.; F. M. Brady, Cleveland, O.; J. W. Robb, Clinton, Ind.; C. P. Mayer, Bridgeville, Pa.; W. P. Whitney, Danville, Ind.; J. G. Barbour, Canton, O.; J. R. Zmunt, Cleveland, O.; F. L. Manning, Portsmouth, O.; F. G. Matheson, Galesburg, Ill.; O. N. Townsend, Zanesville, O.; J. H. Simpson, Trimble, O.; R. D. Culver, Veedersburg, Ind.; J. W. Hall, Baltimore; C. J. Deckman, Cleveland, W. H. Hill, East St. Louis, Ill.; R. L. Lewis, Glouster, O.; C. H. Kepler, Saginaw, Mich.; C. H. Doan, Columbus, O.; D. B. Potter, Grafton, W. Va.; W. P. Blair, Indianapolis.

Hereafter the internal affairs of the association will not be looked after by the board of directors as in the past, but the offices will be in charge of an "office" or administration committee of three. This is composed of President Deckman, of Cleveland; J. G. Barbour, of the Metropolitan Paving Brick Co., of Canton, O., and C. C. Blair, of the Bessemer Limestone Co., Youngstown, O.

The offices of the association which have been at Indianapolis, Ind., for so many years will be removed to Cleveland, O., and will be in charge of National Secretary Will P. Blair.

The removal of the offices to Cleveland this spring means that an especial effort is to be made to cement the relationship between the eastern and western paving brick manufacturers. In the last few years there have been a number of paving brick manufacturers in the Cumberland Valley district who have not been active in the work of the association, and it is claimed by these manufacturers that the east should have had greater representation.

The assessment for the coming year will total about $25,000 and is secured from manufacturers through the contribution of one-quarter of 1 per cent on each yard delivered. It is also estimated that 10,000,000 yards will be the total work for the current year. This fund is to be used for operating expenses and the development plans as have been prepared in advance.

Hereafter the expenses of the members of the board of directors will not be paid by the association, but expenses of the administration board will be paid when a meeting of such has been called. When there is a meeting of the board of directors, the expenses will be paid by the individual members.

Committees on advertising, traffic and transportation will be appointed later by President Deckman, and this task will be completed within the coming month.

An interesting feature connected with the Paving Brick Manufacturers' Association was the presence of several men who represent municipalities. Chicago and Louisville were represented, two coming from the municipal offices of each.

A. F. Keeney, president of the Chicago Board of Local Improvement, and John Minwegan, a member of that body. These men were appointed by Mayor Busse, of

Chicago, to attend the convention and, due to their efforts, a standard testing machine was adopted by the Paving Brick Association to be used on all brick at the factories before delivery.

### Urges a Standard Rattler.

The National Paving Brick Manufacturers' Association at its annual convention in Louisville adopted specifications for a standard rattler machine, and at the same time passed a resolution condemning the action of the organization of city officials for standardizing paving specifications recently taken in New York City.

That organization in adopting specifications for a standard rattler, designed a three point increase in the abrasion test to take care of the increased severity of the new rattler as compared with the old rattler.

The Veteran Secretary, W. P. Blair.

It is this action which the N. P. B. M. A. takes exception to. The three-point increase provided for by the organization of city officials is in no wise sufficient to cover the increase, in the minds of the paving brick men. They feel that they were not given sufficient opportunity to present their own arguments at the New York meeting and that the city officials reached a conclusion without sufficient information.

The resolution adopted by the N. P. B. M. A. at the Louisville convention is as follows:

The National Paving Brick Manufacturers' Association condemns the action of the organization of city officials for standardizing paving specifications, in specifying a three-point increase in the abrasion test to take care of the greatly increased severity of the new standard rattler developed by the N. P. B. M. A. The old machines were so erratic as compared one with another as to make it impossible to secure an arbitrary standard. Any comparison must of necessity be based upon some definite machine. Such comparisons as are now available show an increase from five to ten points, varying with the different old machines. It will be necessary for city officials to determine by investigation for themselves what rattler loss they will allow in their specifications.

The specifications for the new machine will be printed and distributed generally by the association. These specifications are in the main the same as those adopted by the city officials. The brick men will themselves equip their own plants at once with the new rattlers and they will endeavor to persuade city officials to make tests of their products at the plants instead of in the city where the brick are to be used. This idea is borrowed from the National Government, which makes practically all of its tests of materials at the plants instead of on the job.

For years the rattler question has been a live one among the municipal engineers and the paving brick manufacturers. Tests of brick made in the same rattlers, so far as manufacture of both are concerned, and rattlers operated under the same speed have shown a variance of such volume as to create considerable query. About a year ago the paving brick manufacturers agreed that a still further improvement on the rattlers was thought possible.

The paving brick association officials then set to work and numerous experiments were made. This has resulted in the completion of an improved rattler which contains, as usual, 300 lb. of metal, composed of 3-in. rounds and 1⅞-in. rounds, and ten brick to be placed in each charge. The rattler is revolved at the rate of 30 revolutions per minute or 1,800 per hour, which is the length of test. Under the former method the metal charge consisted of 225 lb. of 1½-in. cubes and 75 lb. of 2½x2½x4 in. There has also been noticed a variance in the composition of the metal charges, and the paving brick manufacturers have agreed upon a chemical composition of all metal that is hereafter to be used in the rattlers. Metal under the former rule was either hard or soft, and thereby unfit to give an equal test through length of time, notwithstanding the same rattler was used.

The chemical composition of the metal has received serious consideration, but it has now been reduced to that point where the same standard of composition will be adopted in all parts of the country when rattler tests are required.

There is a preponderance of evidence at hand that the paving brick manufacturers have given the rattler proposition considerably more serious consideration than have the two societies heretofore mentioned. There cannot be any doubt, however, but that the work of the paving brick manufacturers has been the result of greater research than ever before attempted.

### Mr. Van Wiggans Address.

The President:—We will now hear from Mr. Van Wiggan.

Mr. Van Wiggan:—Mr. President, and gentlemen: Two years ago Mayor Busse, myself and another official from Chicago went to Rochester to invite the brick manufacturers to send us samples of brick, so that we could make some tests and get in more brick. The reason for this was we had some brick but not enough, and I want to thank the gentlemen, that I invited to send samples of brick, for sending them in. We gave them the test and the brick, that tested up to the standard, have been used for the past two years.

I, personally, and members of the board, had been opposed to brick pavements for the reason that we hadn't been satisfied with the way things had been going on, and didn't think they were up to the standard they should have been, but since then the board has taken an aggressive stand for brick pavements.

Now, as to the testing. It may be true what Mr. Culver has said, that some men are incompetent to test brick. When they come into Chicago, I personally look after them, and have an expert brick paver to do the actual work. The testing plant is near the water works, near my home, and I guard it as carefully as I would a baby, and when we say to the people we are going to give you a pavement that will last, we mean what we say; we are all property owners and tax payers, and we feel just as much interested in any part of the city's pavement as any owner of abutting property. Now, I say to you, gentlemen, that we have better brick in Chicago than some of the southern granite that is brought in there. When I was a city father, alderman from the 21st ward, and had nothing to do with the specification the board was making at that time, I fought them, but later on when I became a member, I prevented the inferior granites we were getting from being used, and now we want the best brick we can get. I asked for an inspection of the granite, and we examined it and we would not take the cut of the block; the block was good, but the cutting was not up to standard. Now, they have got to give us No. 1 rock; so have the brick men. So I say to you gentlemen in the brick work, don't send us something that we don't want; make your tests at your plants. We have had large lots of brick come in with not one brick condemned, because they had been inspected.

The Man With The Hoe Stands Here.
ANDARD CEMENT GROUT
ING BOX
The MAN WITH THE SCOOP SHOVEL STANDS

Exhibit of Standard Mixing Box.

Now, we ask again, those manufacturers that have good brick, to send us samples again to Chicago. I want to get some more brick in there; the board wants it; the mayor wants it. We haven't very many brick ordinances in force; we have now between eighty and ninety different jobs for brick, and we will probably have more up to July, when we probably will have five hundred thousand yards of brick pavement ordinances. Now, that is principally because these gentlemen have sent us good brick. We thank them. The association can also thank these men.

Another thing I wish to call your attention to; the manufacturers of automobiles are continually trying to improve them. Now, why don't you people get busy and make brick better, and be able to say: "I am shipping brick to Chicago, and I haven't lost any," like the man who said he only lost one brick in Washington. I want to say that there is a gentleman in this room that has not lost a brick in Chicago in two years; he has not had one brick rejected. He said, "We will give you a good brick," and he is doing it. I thank you, gentlemen.

The President:—We have now heard from Mr. Van Wiggan from an officer's standpoint; are there any engineers in the house who would like to be heard on this question?

Mr. Keeney:—I will be very brief. There are always two sides to every question. You, gentlemen, have the manufacturers' side, and the city officials are naturally arbitrators between the people and the manufacturer. Our board has been very successful in securing good brick, and we owe it very largely, practically entirely, to this association. We want to work in harmony with the brick makers' association, and as Mr. Van Wiggan has just stated, those who have sent brick in previously for a test, which for some reason did not pass, we would like to have samples sent in again; it is a matter of selection upon their part, to a very great extent.

As Mr. Van Wiggan has said also, the sentiment in our town has changed very materially in the last two or three years. Previous to that there was a bad odor connected with the proposition of paving with brick; we had a great deal of difficulty, and the property owners had paid out a great deal of money, almost without value received. Now, we can show them streets where there are three miles of brick pavement in one stretch that is perfectly satisfactory, and I am a firm believer in brick pavements. It had reached the point, though, that brick pavements were practically not used in Chicago. Now we are putting down the brick pavement almost entirely, and we are receiving a very good block, and giving the people very good pavements, and value received. I might add that we would be very glad to have you visit our town and we will be pleased to show you the work we have done in our city.

We want to work in harmony with you on the test proposition. I want to add again that any manufacturer that would like to send brick to us, we will be very pleased to receive them and give you the proper test and submit it to you. Thank you.

The President:—Have we any other engineer that will favor us with a talk on this subject? If not, Mr. J. W. Hall, of Baltimore, has had some experience along this line, and I will ask him to give his experience along this line.

Mr. Hall:—Mr. President, and gentlemen: The question of the acceptance of material at the plant has been one that I have been urging for some time, and have urged it in our own city with some success. Our plant is situated upon the water, and a majority of our shipments are made in bulk. Every vessel contains from one hundred and fifty to two hundred and fifty thousand, and you can readily see that the possibility of a rejection is very serious work upon that number. We have been able to get the majority of the cities on the Atlantic coast to do their testing at our plant. It seems to me that it is only fair to the manufacturer, that we have a standard method of testing; a standard that is acceptable to the engineers and to the manufacturers, if the expense can be saved both to the contractor and the manufacturer. There are various reasons why brick are rejected, but the principal one, undoubtedly, is the incompetency, as a rule, of the man who does the testing. There are very few municipalities, I think, that give the attention to it that the gentlemen from Chicago do. My experience has been that they have ordinarily a man at a small salary, and only a moderate degree of intelligence, to take brick, throw them in the wrapper, and pass upon their merit and quality. I think, if my brother manufacturers will speak, that this is the case in a majority of the places where their brick are tested, and if they come to a manufacturer's plant, where we have men who test daily, who surround their tests with every possible precaution, we can give men of that class, if you are going to send them to us, the assistance and proper guidance to check even our own calculations. There isn't a manufacturer in the country who is foolish enough to ship stuff that he knows is not going to pass the test at the other end. If he does he is a very poor business man. It is his business to see that the stuff that goes out, as far as possible, is the stuff that gives satisfaction, and it seems to me that if the engineers will co-operate with us in that respect, as they have in very many other materials, it will be a vast advantage to both the manufacturers and the municipalities.

Representative Paving Block Manufacturers at Louisville.

The President:—We have a few more minutes before we adjourn for our executive session. If there is any other manufacturer that would like to speak on this question, we would be glad to hear him. Let us hear from Mr. Townsend.

Mr. Townsend:—I think Mr. Van Wiggan is exactly correct, and so is Mr. Hall, but the association possibly could except some large cities, and I think that we will all see the time that the smaller town and village, after the installation of the standard rattler that we have all agreed on, we are going to say to the municipality, the smaller ones, "Gentlemen, we will pay the expenses of an expert tester of yours to come here—his railroad fare and his wages." Can we afford to do that rather than have our brick rejected in the cities and villages? That is what it is coming to, you will find out.

The President:—Are there any other gentlemen who desire to address the convention?—Mr. Gates.

Mr. Gates:—Mr. President, Ladies and Gentlemen: This has been a very interesting question. I endorse the judgment of Mr. Hall. I find from experience that there are no two engineers with the same opinions. When the brick get to the city, the objections arise, and the cars are there on demurrage, and you can't take care of the trouble when you are 150 or 200 miles from the work. I think a competent man should be sent to the plant to make the test and pass upon the brick, and bring with him the directions of his engineer.

The President:—Mr. Blair.

Mr. Blair:—Mr. President; There are two phases of this question that the manufacturer is concerned in, and one phase of the question I don't think has been touched on, and that is this: I don't know to what extent trouble has occurred in Chicago; I would like to hear from the gentlemen on that question. I am not advised and I don't know that any of our manufacturers are, but to illustrate what I mean I want to recite just three or four conditions, such as I found in different places over the country during the past season. I recollect particularly, five jobs that I visited consecutively. Now, of those five jobs the deliveries were as fine as ever I have seen; there didn't seem to be any exceptions taken to the general quality of the brick; that is, I presume that all of the brick would have come within the rattler test as required by the specifications, but along the edge of the pavement I should say there was about 25 to 35 per cent of the brick that were delivered there that were rejected from some one cause or another. Now, it is this trouble that is taken exception to, and it is the trouble that we have, and the losses that are sustained by this membership are due to the little physical defects to which exception is taken, and there is where, I think, the largest expense occurs to the manufacturer. I am told by the manufacturers that on this particular job they sustained a loss all the way from $2,000 to $4,000 by brick being rejected on account of some little physical defect after they had been delivered upon the job, but they passed in so far as the rattler test was concerned.

Mr. Van Wiggan: That is a mistake as to the facts, if you refer to a certain street down there.

Mr. Blair:—You misunderstand me, Mr. Van Wiggan; this is not a Chicago matter. I want to hear your experience in Chicago, Mr. Van Wiggan, how you avoid that sort of thing. I want these manufacturers to know.

Mr. Van Wiggan:—I will recite two or three cases. A contractor received a contract to pave a certain street; he didn't look to see whether or not the brick would stand the Chicago test. Two years ago when I returned from the East, Col. Dietrich spoke to me of the test you fellows were prescribing, 80 per cent in shot and so on, and through a little error brick were sent in that would stand 18 per cent loss but would not come under the 20, and in that case we had to reject those brick and we said, "put them in our yard and we will let the contractors know where the 18 per cent can be used, and you can use them there," and they very promptly sent us a very fine brick that we were proud of, and even the brick men can be proud of. The brick were not thrown away, but of course, they had some loss. In another case the gentlemen sent in the brick that didn't come under the 20 per cent test, and I haven't heard a complaint from them about it. I thought you were referring to those.

Mr. Blair:—No, I had reference to other matters.

The President:—Mr. Culver.

Mr. Culver:—Mr. President; I am very glad, indeed, and I think I voice the sentiment of all here, that we have had Mr. Van Wiggan and Mr. Keeney here today. I think very few of the smaller towns are equipped as Chicago, with public spirited officials, where the business, and his love of work are such, that he can give all of his time and attention to the inspection of brick. I haven't the statistics on this matter, but I think a very large proportion of the brick manufactured in this country are used in towns under 100,000, or probably under 50,000, and there the engineering department is handicapped for want of men, and the engineer has so little time that he can not give his personal attention to the test of the brick, and it is done by some one who is incompetent or ignorant, or may have some malicious idea that he wants to work out, and it is to avoid this, that those of us who favor the test at the plant are working. Each city should be a law unto itself. It might be that instead of putting one city to the expense, or one town to the expense of sending an inspector, that there could be an arrangement made, so that several cities could unite on one inspector, some man that would be absolutely above reproach. I hope that this suggestion will be adopted some time, especially where the smaller towns are concerned.

The President:—Ladies and gentlemen, we are very glad to have had you come into this public meeting, and as we have an executive meeting that is past due, we will have to adjourn this meeting for that. We thank you very much for your kind attention.

## A Good Roads Talk.

The address of Jesse Taylor, of Jamestown, O., secretary of the Ohio Good Roads Federation, follows:

"About a week ago the president of the Ohio Good Roads Federation asked me to write to Mr. Blair, your secretary, and ask of him if a good roads enthusiast might have a few minutes mobile, over the rough roads of the country, and he will go home of your time. I said to him 'Why do you want me to go to a brick makers' association to present the good roads question?' He called my attention to the fact that in the state of Ohio, and particularly in Cuyahoga County, that the engineers and the citizens generally had come to the conclusion that macadam roads would not stand the travel of automobiles and that they were using paving brick in the construction of public highways. My attention was called further to the fact that at Marietta, Ohio, in that sandy country the county commissioners had come to the conclusion that stone, clay, dirt and macadam roads were a waste of money in that county, and that they were using paving brick in the construction of their public highways. Paving brick costs money, and a good deal of money, but the conclusion of the engineers is that a road constructed of paving brick will stand the travel of this modern time as the Appian way has for centuries in Italy, but in this time of the great need of construction of public roads the first question which arises, especially among the people who own the land abutting on these highways is, how will we raise the money to construct the public roads of the country. We read in the history of our country that about eighty or ninety years ago the Federal government under a liberal construction of the Constitution adopted the policy of building wagon roads and did construct what is known today as the Cumberland Road at a cost that then looked to be enormous—a total expenditure of about $7,000,000. The policy of the general government then was to continue in the construction and the permanent maintenance of highways throughout the country. It lasted until 1837. A panic came upon the country and they were unable to raise any money for the building of highways for a time, and finally the policy of the government in building public wagon roads came to an end.

"Later on people were attracted by building trans-continental railways—then came the great civil war which almost bankrupted the country, and after the war the people were moving from the east to the middle west, going into Ohio, Illinois, Kansas and Nebraska, and the railroads were being built, and they lost sight of the wagon roads of the country until very recently.

"Until the coming of the automobile and the rural mail, people were giving very little thought to the building of wagon roads. Up to four or five years ago in almost every state in this union, where the people set out to build a public highway, the abutting land owners would have to pay for the construction of the road, and may be the total construction of the road cost ten or twenty thousand dollars, and then nothing was allowed for the maintenance of the road.

"Some time in 1879 the land owners petitioned the county commissioners, and the county commissioners surveyed and built a gravel pike that cost them $7,000 a mile. It has been badly used by the hauling of heavy loads, and there has been no permanent method of keeping it in repair.

"They have in Ohio, as in almost every state in the union, a good roads federation, composed of men who are not interested manufacturers of road building machinery, but an enthusiastic set of men who are trying to make sentiment in Ohio, and do everything they can for the building of highways.

"The Secretary of Agriculture tells us that the loss to our people is three dollars and a half per day on account of bad roads. The Postmaster General declares there are 41,000 rural routes and one million miles of public roads used thereby, and he further tells us that if we had good roads we would secure a saving of $7,000,000 per year in the carrying of the rural mails. We have statistics after statistics gathered from all over the country, which show that public highways here and there properly constructed save to this government millions and millions and millions of dollars, and we, in Ohio, along with other people in the union, believe that the time for general movement is at hand and it is just for the federal government to contribute a liberal sum of money towards the construction and maintenance of highways throughout the country.

We believe that if it is right and proper for the general government to expend its millions and millions of dollars in the construction of levees along the Mississippi River to prevent over-flows of water, if it is right and proper for the general government to go to the foothold of the Rocky Mountains and construct dams and reservoirs there to hold great quantities of water to aid and help the people in the once arid regions to cultivate and make the desert productive, that it is right for it to come and help us build our neglected roads in the country. We think the time has come for a renewal and revival of the policy of government aid in the maintenance of public highways, and believe that the time is now here for the general government to take up the old Cumberland Highway from Columbus to St. Louis and make it better than it ever was. We think the time has come for the general government to take some of its money and extend the Cumberland on from St. Louis to San Francisco and make a great trans-continental highway across this country of ours.

"Now, my friends, it takes money to do all these things. We want roads in Ohio, and they want roads in other states. The only way you can ever build them is by your county and state organization and in assisting the national organization at Washington, and taking care to get your congressman on your side.

If you cannot convert him by other means take him in an automobile, over the rough roads of the country, and he will go home howling for good roads.

"A United States senator from Ohio was opposed to the government aiding in the good roads movement until about two years and a half ago, when with his chauffeur he came from Washington to Cincinnati, and when he struck Vine street, and 'hit the cobble stones' there, he said; 'I am for government aid for good roads from Washington, D. C., to Cincinnati, O.'

"The question is this: Is your congressman sound, as they say in Ohio? Is he mud or is he macadam? Find out. If he is opposed to macadam tell him paving brick will make a a road that will withstand the travel of his automobile. The only thing I can see, that we can do is what we are trying to do here today; make sentiment for building highways. I would like to be with you two or three hours and take up the question of building permanent highways. Everybody has been complaining for the past three years because food products were high. One of the reasons why produce is high in this country, is because we have come to a system of delivering the products of the farm about twice a year; in the summer time when the roads are dry, and delivering in the winter time when the roads are frozen.

"We market all our wheat within three weeks after the threshing machine goes into the field. Why? Because the fear of the farmer that the roads will break up and he cannot get in to the market.

"We market all our corn within sixty days after it has been husked for the same reason. What is the result? The elevators get the corn from six to seven cents less than the market price of that corn anywhere in the United States. With good roads they can take advantage of the market; they can get the order over the telephone or by mail delivered by the rural route. The general benefit to be derived by the people of this country from good roads cannot be estimated.

"Good roads will bring to the homes of the American farmer all the comforts of the town, and you people living in town would take pleasure in taking your automobile or your horse and buggy and going out to the farm to see your neighbor on Sunday morning and get a duck or chicken or butter and eggs and bring them in and have them on your table for dinner.

"Look at the census in our state. It is shown that five of the best counties have lost in population in the last ten years. Where have they gone? Gone to Cincinnati, Dayton and Columbus. Why? Because of the dreariness and loneliness of the country homes out on the bad roads. And we hear everybody, the president of the United States and everybody cry 'Back to the farm.' The way to get these people back to the farm is to build wagon roads, and then they will go back to the farm—then they will stay on the farm, and the people will go from the cities and towns and farms and move out into the pure air and pure surroundings; then they will not stay in the city with its 'hell holes' and all the things that tend to ruin and destruction.

"President Huson said to me: 'Go to Louisville; there is a bunch down there who ought to be the biggest road builders in the country, and may be you can get them interested to go home and organize good roads associations.' Go home and help the people to build up sentiment for the building of roads.

"I heard the Commissioners of Highways in Pennsylvania and in Michigan say that they had concluded that macadam roads would not withstand the travel of the automobile. The Highway Commission of the state of Ohio says the same. If it is not possible to construct a road today with macadam, sand and clay, or lime and binder, that will withstand the travel of the automobile, then it is necessary to use some other material, and paving brick is the material. I know it is expensive. I know it costs a lot of money to build a road out of paving brick, but once built it is always there, with the proper foundation. Go back to Italy; we have the Appian Way built by Appius Claudius long before the birth of Christ. The travelers tell us—I have never had enough money to go abroad and get back—tell us that many sections of the Appian Way are in as good condition as when they were constructed.

"In England, the Romans, when they conquered the country, built public highways, and travelers tell me that they rode over England in an automobile last summer, and when they would strike a good piece of road they would stop and inquire of some who built the road and the reply always came, 'the Romans built this road.' Travelers tell me that the road built by Napoleon through the Pass is in as good condition today as when completed, that the ordinary roads going into Germany, France, England and Denmark are good, and we find there a government system for constructing and maintaining highways, and that they marshal the roads and keep them in good condition.

"I don't care what it costs to build a road along my farm, so as to enable my tenants to get to town, but there must be some system, and some uniform method, and it would be to the interest of the Paving Brick Association to build some place in the country a sample piece of road, and let the public know where it was and let all the automobilists try it.

"You cannot build roads sitting here—I cannot build roads by talking to you—but I do beg of you when you go home to take the matter up with your people, no matter what county or what state you live in. You are as much interested as anybody, and we hope you will be more interested after awhile.

"The president of the Ohio Federation sent this resolution by me:

" 'Whereas, the Ohio Good Roads Federation is conducting a widespread educational campaign for the purpose of creating public sentiment favorable to the enactment of legislation by Congress making liberal appropriations for assisting the state and local road authorities in the improvement of public highways,

" 'Whereas, the proposition that a part of the federal resources collected in taxes from the people of the whole country, should be devoted to aiding in the construction and maintenance of improved roads, is just and reasonable, and should be adopted by Congress at the earliest possible date, and,

" 'Whereas, the Ohio Good Roads Federation is laboring to arouse and stimulate sentiment for road improvement, is striving for wise, equitable and uniform road legislation, and for the connection of important roads of each state with those of adjoining states,

" 'Therefore, be it resolved, by the National Paving Brick Manufacturers' Association, that we commend the work of the Ohio Good Roads Federation, and urge the members of this association to take greater interest in the good roads question.' "

The Great Indianapolis Motor Speedway
BRICK PAVED.
NATIONAL PAVING BRICK MANUFACTURERS ASSOCIATION

Paving Block that is Rapidly Making the United States the Best Paved Country in the World.

### Mr. Culver on Inspection of Paving Brick.

"We had up for discussion in our closed session the matter of having an inspection of paving brick made at the works instead of on the streets or highways after delivery, and it was suggested by me, I believe, that it would be a good thing to have this question discussed pretty generally this afternoon in open session, especially if we should be honored with the presence of the city engineer, and I 'put my foot in it' as I have frequently done in my life, because Mr. Blair immediately got up and suggested that I lead the discussion.

"I think every one who hears me who is in the paving brick business has his share of troubles from one end of the year to the other. Most of us have a great many gray hairs, and I account for it from the fact that we all have these troubles in our business. One of the chief difficulties in my business, and I think I am voicing the experience of most brick makers, is in testing paving brick. We are not all in the position of our friend Mayer, from Pennsylvania, who says that he has no such trouble except from the national inspection. I am one of the young men here—and am just starting on my twentieth year in the paving brick business.

"Every one of us wants to put on a job, good brick, brick that will stand the tests, but we find that these tests are frequently made by incompetent persons by subordinate engineers who do not understand, and the result is that every one of us except Mr. Mayer run into the situations where we feel absolutely, without intention on his part, that we are subjected to injustice on the part of the engineer and his tests.

"Those tests are, so far as I know—except when selling to the government—made when brick are delivered on the street. Now, we feel that if we can inaugurate a movement here to bring about the testing of brick on the yards, that we will be saving a great deal of money and annoyance to ourselves and to the engineer. We might not make so much money for the railroads, because they won't get the haul on the brick except the ones that are accepted. But it is the only line of common sense. I simply intend to open the subject. There are a great many others whom we would like to hear from."

## PAVING BRICK DISPLAY AND EXHIBIT.

Thirty or more lines of paving block were displayed in one general exhibit on the tenth floor of the Seelbach Hotel, it being the first time that such an exhibit was ever assembled. It afforded much food for reflection upon the part of the paving block manufacturers of the country, and also upon the part of municipal and county engineers and State Highway Commissioners.

Three Well Known Members.

The exhibit was not only arranged for educational purposes but also to show just what wonderful progress has been made in the manufacture of paving block during the last decade.

Time was when the paving block was not thought of—only the vitreous fire-brick being bought for highway improvement purposes. But not so in these days of higher education.

Six or more samples of paving block were shown from each firm. These were arranged in step form, and on the "top step" was a neatly printed card showing the name of the firm manufacturing that "line" of paving block. The exhibit was arranged just to the right of the entrance to the assembly room, where the National Paving Brick Manufacturers' Association met.

Firms represented in the display, a photograph of which is shown in this issue of Brick and Clay Record, follow:

Peebles Paving Brick Co., Portsmouth, O.; Murphysboro Paving Brick Co., East St. Louis, Ill.; Wabash Clay Co., Veedersburg, Ind.; T. B. Townsend Brick & Construction Co., Zanesville, O.; Thomas Moulding Co., Chicago, Ill.; Danville Brick Co., Danville, Ill.; C. P. Mayer Brick Co., Pittsburg and Bridgeville, Pa.; Athens Brick Co., Athens, O.; Cleveland Brick & Clay Co., Cleveland, O.; Poston Paving Brick Co., Crawfordsville, Ind.; Marion Brick Works, Montezuma, Ind.; United Brick Co., Conneaut, O.; Deckman-Duty Co., works at Minerva, Carrollton and Collingwood, O., and main offices at Cleveland, O.; Wooster Shale Brick Works, Wooster, O.; Big Four Brick Co., Canton, O.; Newburg Brick & Clay Co., Cleveland, O.; Wassall Brick Co., Glouster, O.; Metropolitan Paving Brick Co., Canton, O.; Alliance Clay Products Co., Alliance, O.; Bessemer Brick & Limestone Co., Youngstown, O.; Nelsonville Brick Co., Nelsonville, O.; Terre Haute Vitrified Brick Co., Terre Haute, Ind.; The A. F. Smith Brick Co., New Brighton, Pa.; Purington Paving Brick Co., Galesburg, Ill.; Barr Clay Co., Streator, Ill.; Brick, Terra Cotta & Tile Co., Corning, N. Y.; Clinton Paving Brick Co., Clinton, Ind.

A salient point brought out in this exhibit was the large number of Ohio manufacturers represented.

As Ohio is near the top notch in the clay manufacturing line, it is little wonder that it held the record for displays in this line at the Louisville convention.

Giving manufacturers credit due them in making displays at the Pittsburg, Pa., convention in 1910, displays made at the Louisville convention were considerably larger than those in former years. The tenth floor of the Seelbach Hotel was used for this purpose, about one-half of the large auditorium being set aside for the exhibitors.

The exhibit of the Paving Brick Manufacturers' Association was by far the most interesting, so far as clay products were concerned, but when it came down to the machinery lines, every exhibitor took pride in trying to make his allotted space more attractive than that of his neighbor.

This contest was a good-natured one, and rivalry for neatness and attractiveness admittedly keen.

### PAVING BRICK MANUFACTURERS' ROSTER.

Will P. Blair, Secretary N. P. B. M. A., Indianapolis, Ind.
J. G. Barbour, Metropolitan Paving Brick Co., Canton, O
J. W. Robb, Clinton Paving Brick Co., Clinton, Ind.
C. J. Deckman, of Deckman-Duty Co., Cleveland, O.
Spencer M. Duty, of Deckman-Duty Co., Cleveland, O.
Herbert C. Moatz, of Deckman-Duty Co., Cleveland, O.
W. T. Blackburn, Paris, Ill.
Charles Hoshour, Cleveland Vitrified Brick Co., Okla. City, Okla.
O. N. Townsend, T. B. Townsend Brk. & Con. Co., Zanesville, O.
F. M. Brady, Cleveland Brick & Clay Co., Cleveland, O.
M. J. Bannon, Kentucky Vitrified Brick Co., Louisville, Ky.
W. R. Barnhart, Jr., Wooster Shale Brick Co., Wooster, O.
Merle Sidener, N. P. B. M. A., Indianapolis, Ind.
W. N. Alderman, Athens Brick Co., Athens, O.
William Rustin, Athens Brick Co., Athens, O
J. R. Zmunt, Newburgh Brick & Clay Co., Cleveland, O.
Philip Raimer, Newburg Brick & Clay Co., Cleveland, O.
F. G. Matteson, Purington Paving Brick Co., Galesburg, Ill.
R. C. Lewis, Wassall Brick Co., Glouster, O.
C. C. Barr, The Barr Clay Co., Streator, Ill.
E. Rodger, Alton Brick Co., Alton, Ill.
F. W. Lucke, of L. W. Lucke Co., Chicago, Ill.
J. B. Wilcox, Alliance Clay Products Co., Alliance, O.
Jacob Rahn, Alliance Clay Products Co., Alliance, O.
J. B. Nicholson, Toronto Fire Clay Co., Toronto, O.
T. P. Cuthbert, Toronto Fire Clay Co., Toronto, O.
M. E. Gregory, Brick, Terra Cotta & Tile Co., Corning, N. Y.
B. A. Inglis, Copeland-Inglis Shale Brk. Co., Birmingham, Ala.
W. A. White, Big Four Clay Co., Canton, O.
Ralph Simpkins, Hydraulic Press Brick Co., St. Louis, Mo.
Clarence E. Crook, Bessemer Limestone Co., Youngstown, O.
A. J. Aubrey, Bessemer Limestone Co., Youngstown, O.
C. C. Blair, Bessemer Limestone Co., Youngstown, O.
J. H. Caldwell, with Prof. Edward Orton, O. S. U., Columbus, O.
W. H. Hill, Murphysboro Paving Brick Co., Murphysboro, Ill.

N. P. B. M. A. Officials.

C. C. McMillan, Medora Shale Brick Co., Medora, Ind.
N. V. Trautman, Medora Shale Brick Co., Medora, Ind.
R. D. Culver, Wabash Clay Co., Veedersburg, Ind.
D. B. Potter, Thornton Firebrick Co., Grafton, W. Va.
John Simpson, Trimble Brick Mfg. Co., Trimble, O.
John W. Hall, Westport Paving Brick Co., Baltimore, Md.
D. H. Blodgett, Westport Paving Brick Co., Baltimore, Md.
P. A. Smith, of the A. F. Smith Co., New Brighton, Pa.
Charles H. Kepler, Saginaw Paving Brick Co., Saginaw, Mich.
C. H. Doan, Nelsonville Brick Co., Columbus, O.
Earl E. Litz, Allentown Brick Co., Allentown, Pa.
F. L. Manning, Peebles Paving Brick Co., Portsmouth, O.
Charles H. Frank, Athens & Nelsonville Brick Co., Columbus, O.
Edward L. Middleton, The Barr Clay Co., Streator, Ill.
C. G. Norris, Portsmouth Granite Brick Co., Firebrick, Ky.

## A FEAST OF PEARLS.

The second annual dinner of the Pearl Clay Products Co., of Bradford, Pa., given to the representatives of the company and friends, was an event of especial interest the evening of February 8 in the rathskeller of the Seelbach Hotel, Louisville, Ky. There were 27 at this dinner, which was one given with a view of explaining the organization of this company.

The "Big Ones" in the Pearl Clay Products Co.

The company operates nine plants, and are proprietors of the Kittanning Clay Products Co., Kittanning, Pa.; Tuna Valley Pressed Brick Co., Bradford, Pa.; Upper Kittanning Brick Co., East Brady, Pa., the headquarters of all of which are at Bradford, Pa.

This concern is known in the trade as the Foster-Hodges Line, and this year the firm will dispose of 5,000 cars of building brick.

Following the menu there were several short addresses, and, as would be expected under the circumstances, the speeches were right from the shoulder. Those who spoke were William M. Hodges, sales-manager of the Pearl Clay Products Co., who spoke on the system of organization of the companies, and of the Foster-Hodges lines.

Mr. Rodgers, of the Brick Builder, Boston, dwelt in a happy vein upon "Artistic Facing Brick."

R. E. Sunderland, of Omaha, Neb., and C. E. Foster also spoke.

Those who were guests of the company were W. M. Hodges, George W. and C. E. Foster, of Bradford, Pa.; F. M. Foster, Kittanning, Pa.; J. Parker, B. Fiske, New York; Mr. Rodgers, Boston, Mass.; Messrs. Purcell and Grand, Cincinnati, O.; Mr. Searight, Philadelphia, Pa.; Mr. Beldon, Canton, O.; Mr. Mitchell, Cleveland, O.; Albert D. Kline, Omaha, Neb.; D. J. Kennedy, Pittsburg, Pa.; R. L. Queisser, Cleveland, O.; Mr. Sibley, Birmingham, Ala.; Mr. Harris, New York City; J. H. McDonald, R. E. Sunderland, Omaha, Neb.; Mr. Bonner, Chicago, Ill.; Harry C. Podosky, Chicago, Ill.; T. P. Cuthbert, Pittsburg, Pa.; A. S. Reed, Newark, N. J.; H. L. Harmon, Bucyrus, O.; Mr. Schellenberger, Philadelphia, Pa.; J. F. Leonard, Cleveland, O.; Mr. Goeppel, Indianapolis, Ind.; J. A. Link, Baltimore, Md.

The representatives from the home offices of this company distributed handsomely leather bound memo books, a token which was highly appreciated by all who received them.

"We had a good time, and these little get-together dinners have been productive of considerable good," commented Mr. Hodges as the guests of the company were leaving the tables. On the part of the guests they voted as a unit that Messrs. Foster and Hodges were royal entertainers.

## GENERAL CONVENTION NEWS.

Any amount of pleasure had been provided by the Louisville entertainment committee for the ladies who visited that city in connection with the National Association meeting.

Tuesday night there was a general card party in the large banquet room of the Seelbach hotel, and at the tables were both the members and their wives and many guests. The scene was a most charming one and a very pleasant evening was passed. The card party was only one feature of the entertainment, for while the men were in session and enjoying "convention spirit" the ladies in attendance were not idle.

There were automobiles filled with the "Brick Ladies" touring the town, and while the men were enjoying talk and cigars at the smoker in the red room the ladies were guests at a theater party at the Mary Anderson theater Tuesday night.

## GOOD RESULTS FROM ADS.

Mr. Rorick, of the Arnold Creager Co., New London, O., says he has had excellent results from ads in "Brick and Clay Record," on account of which he says the sales the past month exceeded those of previous months. He reports business fine and prospects good for the coming year.

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

BRICK AND CLAY RECORD

Vol. XXXVIII. FEBRUARY 15, 1911 No. 4

## AN ARCHITECTURAL ENDORSEMENT.

"The American Architect," a well known New York publication which has taken a very advanced position in all matters relating to building progress, is enthusiastically in favor of national technical expositions and the publishers heartily endorse the plan for the proposed Brick and Clay Products Show to be held in Chicago next year. In a recent editorial on the subject of technical expositions, the publication had the following to say:

"That exhibitions of various building materials and appliances have in general resulted in large benefit both to the industries that have promoted them and the building world at large is undeniable. Their great value as educational factors cannot be gainsaid. The recent Cement Show in New York furnishes a fine illustration. Architects and engineers from all sections of the country journeyed to the city to view the exhibition and study the progress of the industry as shown by models and machinery. There was also evidenced a very broad and general interest on the part of the public, which, while naturally relying upon professional advice and direction for technical application and use, nevertheless thronged the exhibition in search of general information. No one can doubt the advantage of providing the means for this educational work. Manufacturers themselves learned from each other and many an architect realized that he had never before appreciated fully the possibilities of the materials shown, or perhaps thoroughly understood the reasons for many things made plain by the wonderfully complete and accurate presentations. In contemplating the matter the question naturally arises, Why do not those interested in the sale and use of other building materials of wide application make use of similar educational methods? For example, who can doubt that an exhibition of clay products would prove of absorbing interest to the technical man as well as the general public, if made sufficiently comprehensive, and of very great value to the industry? As a matter of fact there is hardly a question but that this particular industry has somewhat neglected to avail of educational means readily at hand. No exhibitions of importance have been held. With few exceptions the various branches of the industry have been sparing of publicity even in quarters that practically control the destinies of clay products. Publicity is educational in its effect. This country's progress and development are due almost entirely to its broad educational methods. A business or an industry that neglects to educate those upon whom its success largely depends, by keeping them fully informed not only as to the properties and possibilities of its product, but also concerning the progress and development of the art, business or industry, cannot reasonably hope to keep pace with the march of events. Only the greatest intrinsic merit will account for survival at all under a policy of self-sufficiency and assumed complete knowledge on the part of those interested under conditions that obtain to-day. There is little satisfaction or profit in only surviving or existing. A growth at least in proportion to the growth of the country is essential to a healthy life. A growth equal to that of a rival industry is essential to a feeling of satisfaction or even comfort on the part of the thoughtful man engaged in any business enterprise. "Sufficient unto the day is the evil thereof" may be good philosophy, but it is a poor business motto. Plans for the future occupy the minds of the most brilliant man in every successful business organization. It is to be hoped that the clay products industries will not only decide to hold a mammoth exhibition annually, to which will be admitted every allied interest, but will supplement it with an educational campaign that will at least furnish complete and detailed information of a reliable nature to those who have almost daily use for it. The matter appears to be of the greatest importance."

## QUIT YOUR KNOCKING.

If you are knocking you'll find that you are advertising the other fellow. So quit your knocking—quit advertising the other fellow. If anyone is going to knock, let him do it, and advertise you. No cause for alarm. So get rid of the idea that your knocking competitor is hurting you.

## RESULTS COUNT.

We have many testimonials on file at our office from satisfied advertisers in our classified ad department. The expense is small, but the results have proven very satisfactory, as may be seen from the long list each issue in our classified ad column. If you have anything for sale or wish to buy anything you could find no surer means to the end desired than to insert an ad in the classified column.

## A QUESTION TO ANSWER.

A subscriber of Brick and Clay Record desires to know of parties who are drying clay artificially for the manufacture of dry pressed brick. We will greatly appreciate information on the subject as to methods and results, from those who are familiar with the same.

## SOMETHING TO LOOK FORWARD TO.

In a subsequent issue of "Brick and Clay Record" will appear an instructive article on "Vitrified Pipe vs. Concrete Pipe," by E. Argo, secretary of the Blackmer & Post Pipe Co., of St. Louis, Mo.

# The Bolivar Face Brick Co.

## Important Purchase and Consolidation of Pennsylvania Fire Brick Plants Representing Over $1,000,000

One of the largest and most important deals of the year in the brick world was recently consummated by J. B. Hammond, of Bolivar, Pa., when he concluded the negotiations for the purchase for the Phenix Fire Brick Co. and the Bolivar Face Brick Co., all of the properties formerly owned and operated by the Reese-Hammond Fire Brick Co. and the United States Enameled Brick Co., valued at over half a million dollars.

The factories and properties heretofore devoted exclusively to the high grade silica and fire brick business have been acquired by the Phenix Fire Brick Co., which is a corporation made up largely of local people, the officers being J. B. Hammond, president, B. F. Reese, secretary and general manager, and W. B. Hammond, treasurer.

The properties acquired by the Bolivar Face Brick Co., however, are larger, more extensive and of more interest to our readers, being devoted almost entirely to the manufacture of a variety of high grade face and paving brick. The properties purchased for the corporation include 285 acres of mineral land in fee, fronting on the main line of the Pennsylvania Railroad and the Conemaugh River at Bolivar, Pa. This acreage is underlaid with perhaps the most valuable deposits of material for the manufacture of various products turned out at this factory, of any similar acreage thus far developed in connection with the brick industry in this country.

View of Plant of Bolivar Face Brick Co. Phoenix Fire Brick Co. in the Background.

There are four layers of coal underlying this property, consisting of two thin seams of 20 in. and 24 in. immediately over the fire clay deposits, which are, or may be, worked in connection with the fire clay; while the two principal seams which are operated independent of the fire clay and furnish the fuel for the factories consist of one seam 3½ ft. and another 6 ft. These four seams lie above the level of the railroad, immediately adjacent to the factory, are worked by drift, natural drainage, under the most favorable mining conditions, with no gas to contend with, the mining rates reaching from 40 to 60 cents per ton, making an average cost, delivered to the boilers and the kilns, of about 75 cents per ton.

The fire clay deposits consist of two seams of flint clay 5 to 8 ft. in thickness, the upper seam being a black, flinty, refractory clay very free from impurities, suitable for high grade fire brick; the under seam 8 to 12 ft. in thickness, being gray in color, slightly less refractory than the upper seam and suitable for No. 2 fire brick.

The plastic clay deposits consist of seven distinct seams: the first seam, above the level of the railroad, being 5 to 8 ft. in thickness and suitable for an iron-spot face brick; the second a seam 6 to 8 ft. in thickness of a semi-flinty fracture, suitable for manufacture of the best color effects in rough face and iron spots; the third seam is 5 to 6 ft. in thickness, of burning a light-buff, remarkably free from impurities, suitable for enameled and face brick, the latter in plain color; the fourth 8 to 12 ft., very plastic, vitrifying easily and uniformly throughout, from which is made high grade paving block; the fifth 5 to 6 ft., refractory, yet of rather porous nature, used in the manufacture of coke oven, bottom tile and door blocks; the sixth 5 to 7 ft., very plastic, not operated on this property but suited to a variety of products made at this factory; the seventh 5 to 6 ft., burns a pinkish or terra cotta cast, suitable for making face brick.

The shale deposits consist of three seams varying in thickness from 8 to 15 ft. each, from which are manufactured a superior quality of shale paving block, meeting the highest absorption and abrasion tests, and a variety of effects in face brick to meet the popular demands of the trade at this time.

There are also three strata of silica rock and two of iron ore on this property that are especially valuable when properly manipulated with the different layers of fire clay to produce a good variety of live shades of face brick both in rough and smooth effects.

With nine seams of fire clay, three of shale, three of silica rock and two of iron ore, all mined or in condition for mining on property immediately adjacent to the factory, within three hundred yards of the pan, all above tipple height, and with four layers of coal for burning the product, it will be readily seen that the factory of the Bolivar Face Brick Co., is most advantageously located. Not all of these seams of material are being operated. Three of the beds of coal, however, are developed, one of which is being worked in connection with the fire clay, two of them independent of the fire clay. The flint clay is also operated to some extent, as are four distinct seams of plastic clay; one of shale, two of silica rock, and two of iron ore, one of which is known as bog ore and one gray ore.

The plant is well located, not only with relation to the supply of raw materials, but with plenty of room for buildings and with splendid shipping facilities. The building site consists of about seven acres of level land lying between the Pennsylvania Railroad and the Conemaugh River at Bolivar, Pa., with side tracks on both sides of the factory. There are two factories, the first of which is known as the Enamel Plant, which was formerly owned and operated by the United States Enameled Brick Co., consisting of brick factory buildings constructed throughout of brick, steel and slate; two tubular boilers; two engines; 9 ft. dry pan; 5 ft. combination wet and dry pan; Frese combined machine; Bonnot cutter; two hand represses; Potters pug mill; filter press; glaze mills and other equipment for preparation of enameling materials; also hot air drier; four square down draft kilns; five round down-draft kilns, and one Potter kiln.

The second factory, formerly owned and operated by the Reese-Hammond Fire Brick Co., is known as No. 4 Works. The main buildings are constructed of stone, steel, brick and slate, and consist of the power building; main machinery building; auxiliary machinery building; two driers; machine shop; two fan and heater buildings; three storage buildings; blacksmith shop and scale house. The equipment consists of five tubular boilers 650 h. p.; four engines,—one 550 h. p. Corliss, one 35 h. p., one 30 h. p., and one 15 h. p. vertical, the three small engines driving fans and furnishing power for machine shop; one 125 h. p. compresser, furnishing power for mine; also heaters and pumps. The machinery of this factory consists of two crushers; six 9 ft. dry pans and one 8 ft. wet pan; two 12 ft. iron pug mills; one vertical tuyere machine; one American Special Giant stiff-mud machine; one Freese Ohio Mammoth machine; one American No. 32 combined machine; one Horton soft-mud machine; one Berg four mold dry press; two Eagle double represses; two Victor double represses. There are two driers, one heated with exhaust steam, coil heater and fan, and one with waste heat from cooling kilns; about 400 drier cars; 28 down-draft kilns, five of which are longitudinal, and twenty-three round.

There is also a machine shop thoroughly equipped for doing all the machine work necessary not only at these factories, but work is done for other factories.

The capacity of the two factories owned by the Bolivar Face Brick Co., is 100,000 brick per day, and the product consists of mat glaze, impervious white brick; a number of delicate shades of face brick including French gray and blue gray, such as have been furnished for the Vanderbilt Hotel in New York city and for the United States Naval Academy buildings at Annapolis, Md.; a variety of mottled face brick including spotted-cream, gray and white, made under a special terra cotta process; cream, buff, orange, gray and red brick in solid colors in smooth and rough effects; iron spots and velours consisting of a variety of artistic shades in rough effects comprising buff, gray, golden-brown and gun metals. In fact, while there is no attempt to carry a stock of all the different shades above enumerated, yet, owing to the number of different seams of fire clay, shale, ore and other coloring materials, the range of colors and shades that may be produced at this plant is practically unlimited. Many times this factory has produced shades to order to satisfy the demand of some architect, and this company is in a position to match practically any shade of brick or terra cotta that may be submitted, in addition to making several colors and shades that are exclusive and different from anything produced elsewhere. The product also includes fire clay and shale paving block, and fire brick for general purposes and ground fire clay.

This factory is able to reach a very wide territory; markets can now scarcely be described by geographical limitations, as in times past, and the product of this plant has been marketed from Maine to British Columbia, and from Hudson Bay to the Gulf of Mexico.

This company has good business booked already for this year and the prospect for a big year's business is very encouraging. The most important brick job furnished by this concern the past year was that of the Vanderbilt Hotel, 34th St. and Park Ave., New York city, which was supplied through its New York agents, Carter, Black & Ayers. These brick are of a special shade known as French gray, developed by the Bolivar Terra Cotta Brick Co., operating the Enamel Plant, which has been absorbed by the Bolivar Face Brick Co., and is a difficult shade to produce. The architects, Warren & Wetmore, of New York city, had a certain color effect that they desired to carry out, using a varying shade of French gray for the main walls, to be trimmed with faience and white enameled brick, and it certainly presents a very artistic appearance.

The officers of the Bolivar Face Brick Co. consist of J. B. Hammond, president; C. W. Hammond, secretary; F. R. Hammond, treasurer; I. L. Hammond, superintendent, and these four with E. R. Hammond constitute the board of directors.

## BUSINESS INCREASES IN VOLUME.

An Ohio newspaper states the following:

"Owing to a press of business the plant of the American Clay Machinery company at Bucyrus is being operated at night also. Large orders have come in from east to west, showing that the building trade in all parts of the country is in a healthful condition. The recent convention of Clay Workers at Chicago demonstrated that the American Company's brick setting machine has revolutionized the kiln setting branch of the trade and that where it cost sixty cents to handle a thousand brick in the past, the new American machinery is doing it better and quicker at twenty cents a thousand. Chicago brick manufacturers are more than pleased with the Penfield machines."

## THE CHASE FLEXIBLE BOX DRYER CARS.

The Chase Foundry & Manufacturing Co., of Columbus, Ohio, report inquiries and sales on their Patent Flexible Boxing Dryer Cars far in excess of any previous year.

The ease with which this car runs and adjusts itself to all conditions without strain or binding on the bearings, and above all, the practical construction, strength and durability has won for it many friends. Brick manufacturers will find it of interest to examine this car before placing their orders. Address, The Chase Foundry & Manufacturing Co., Columbus, O., for further information.

## ADVERTISING PAYS.

An example of up-to-date publicity is the model booklet The Clay Products Co., Chicago and Brazil, Ind., is distributing, which strongly emphasizes the fact that "literature is revolutionizing advertising." Aside from its attractive appearance, it is highly educational, giving an interpretation of the conduit in all its different forms and uses, which makes it valuable and useful to all interested.

# Home of the Boyd Brick Press

## Development of the Semi-dry Clay Process of Brickmaking Marked by the Progress of Chisholm, Boyd & White Co., of Chicago, an Important Factor in This Branch of the Clay Industry

The semi-dry clay process of manufacture marks the final development in the evolution of the brick industry, which found its beginning in the hand-mold sun-baked brick of the ancient Egyptian. The early methods employed in this country were brought from Europe and were exceedingly primitive. Further progress developed the soft-mud brickmaking machine, which was followed later by the auger machine, utilizing what is known as the stiff-clay process, which developed the modern wire-cut brick. The demands, however, for a more perfectly made brick than was possible by either the soft-mud or stiff-clay processes and the ingenuity of the machinery men finally resulted in the development of what has been called "dry pressed" brick.

It is a fact, however, that the term "dry clay" or "dry press process" is largely a misnomer and is therefore misleading. It would be more correct to call this modern method of brickmaking the "semi-dry clay process," for to obtain the best results by this system the clay when made into brick should contain from 8 to 12 per cent of moisture.

CHISHOLM BOYD & WHITE COMPANY BRICK MACHINERY
CHISHOLM BOYD & WHITE CO.

General View of Chisholm, Boyd & White Factory.

The usual method of handling and preparing field or bank clays for this method of brickmaking, is by plowing the clay beds or fields to a depth of 3 or 4 inches. The plowed clay is allowed to remain exposed to the sun and wind until it is partially dry. It should then be stored in sheds built for the purpose and allowed to remain until it goes through the curing process and has become uniform and mellow. When in this condition it is easily pulverized, screened and mixed and contains sufficient moisture to bond under pressure. Clays treated in this manner produce better brick than if worked direct from the clay fields.

Shales, slates, hard clays and other such materials, generally contain sufficient moisture in their natural state and can be used direct from the beds or mines without the necessity of storing to get uniformity, although such materials are improved, and will make better brick, if allowed to weather and disintegrate by exposure to the atmosphere.

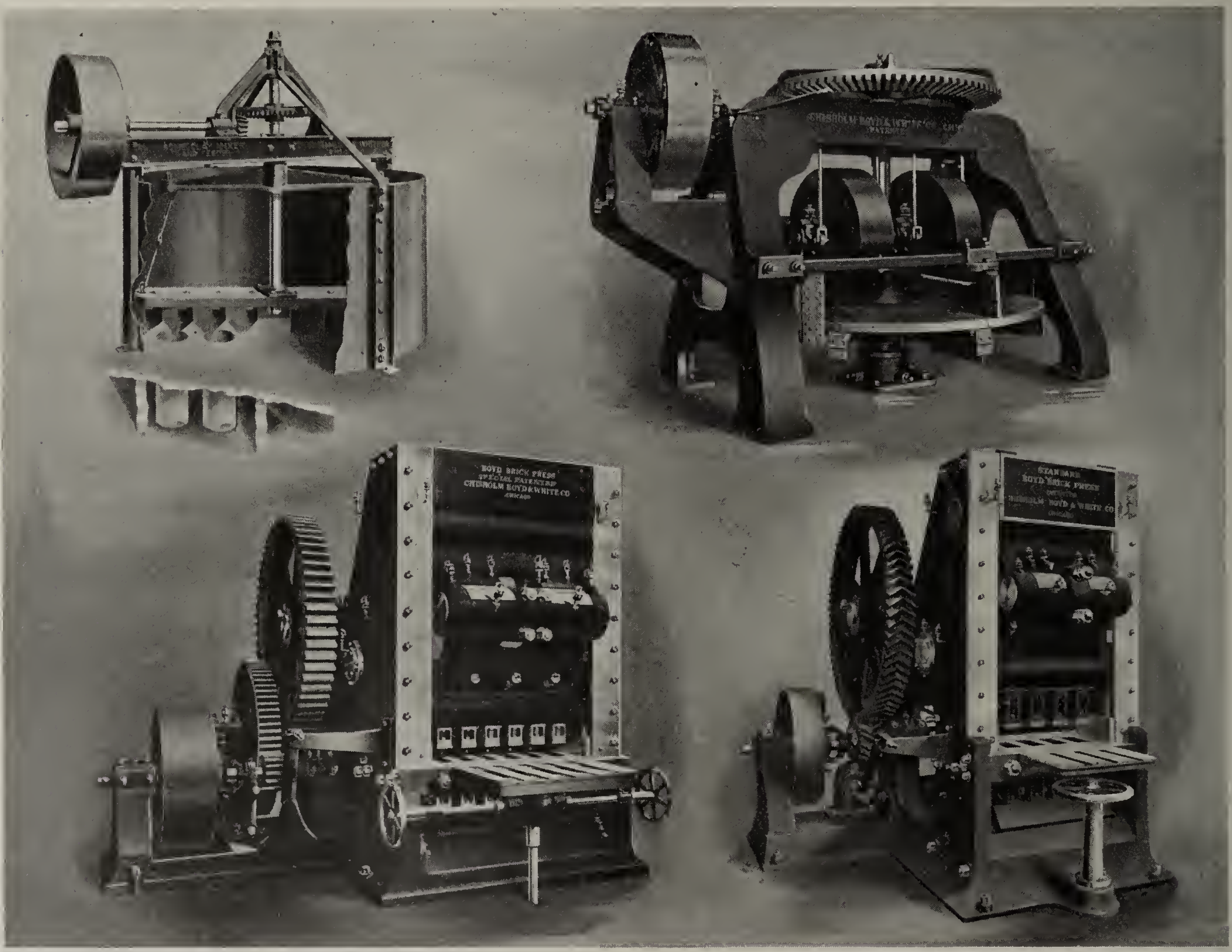
It is only about a quarter of a century ago that brick made by the semi-dry process came into popular favor and attracted the attention of the building world, and the many millions that are now used annually attest the durability and popularity of brick made by this process. The beauty and perfection of pressed brick is unquestioned, and even today, in competition with a large variety of wire-cut stiff-clay brick and other building materials, it maintains its high position. Its smooth surface and uniformity in size make it particularly desirable for the facing of first-class buildings.

Semi-dry pressed brick are now manufactured in a great variety of effects and are used extensively in the standard, Roman, Norman and ornamental shapes. They are produced in variant colors and also in mottled and speckled effects, giving the architects a large variety to choose from in selecting facing material. Their uniformity permits narrow mortar joints and their smoothness insures an appearance of cleanliness and neatness in wall facing not secured through the use of other forms of building material.

Common building brick are also made by this process very economically and successfully, in fact there are many sections throughout the country where practically all common building brick are made by this process at exceptionally low cost.

While the manufacture of semi-dry pressed brick first found its origin in the building world in St. Louis, yet its manufacture rapidly developed through the country and that process is used wherever suitable material can be found. As in all other lines of clay development, it is due to the machinery manufacturers that this system of clay working became possible through the perfection of their machinery. In the development of the semi-dry clay process of brickmaking the firm of Chisholm, Boyd & White Co., of Chicago, have been a most important factor.

The first Boyd brick press was introduced to the brickmakers of the country in 1888 and its advent marked the beginning of rapid improvement in the building of brick machines, giving new impetus to the progress of the clay industry. Since that time this company, which has devoted its energies exclusively to the development of this process of brickmaking, has stood in the front ranks and has played a most important part in clay working history. Today Boyd presses are in operation in every state in the union and it is probable that over half of the semi-dry pressed product of the United States has been produced on Boyd presses. It can be understood that this represents no small output, for statistics show that the value of this class of brick annually in the United States amounts to many millions of dollars and this production is growing larger as every year passes. Boyd presses are in operation also in most foreign countries, including Russia, Japan, Germany, England, New Zealand, South America, Mexico and Canada.



Group of Finished Machines.

To give some idea of the popularity of the Boyd press, the little town of Ferris, in Ellis Co., Tex., offers an excellent example. In this town ten Boyd presses are in operation, producing upwards of 300,000 brick daily, or a total of over 100,000,000 per year. Wherever suitable clays and shales can be found Boyd presses will be found in active operation.

It must be understood that to produce good brick by the semi-dry clay process or any other method, suitable clays and shales must be used. Some materials are naturally unsuitable for brickmaking purposes by any method and no manipulation could make such materials fit for the manufacture of brick.

The particular advantage and economy secured through the manufacture of brick by the semi-dry clay process is in the elimination of the drying operation, as the green brick are taken direct from the press and set into kilns

Chisholm, Boyd & White Co. have not only devoted themselves to the perfecting of their Boyd brick presses but also to the development of proper grinding and mixing machinery for the preparation of clays and shales used in the operation of making brick by this process. The plants which they have designed and equipped complete throughout have proven very successful. The company undertakes all the engineering features, designing, erection installation, and supervises the construction of such plants until they are in successful operation.

While the Boyd presses, as built today, are far superior to the original Boyd presses as built in 1888, it is a notable fact that many of the first presses built are still in use and doing satisfactory work. This is largely because of the policy established by the company since its beginning, to produce in design, construction, strength and durability the best machinery possible.

Occupying so prominent a place in the brickmaking industry, it is to be expected that the home of the Boyd brick press should be representative of its importance, and a visit to the well equipped plant of Chisholm, Boyd & White Co., 57th & Wallace streets., Chicago, is no disappointment. The plant occupies a large brick factory building conveniently located and systematically arranged. The main shop building is 250 ft. in length by 80 ft. in width. In the front of the building is a suite of well appointed business offices, the arrangement of which indicates the up-to-date and systematic business methods of the company.

Mr. Flood "On the Job."

Filing Department.

A Busy Corner in a Busy Office.

The various glimpses of the factory interior shown here give only a small idea of the extent and perfect equipment of this plant. The main machine shop and erecting floor is a decidedly busy and interesting place, and at the present time shows a surprisingly large number of Boyd presses and other machines in process of construction, evidencing the activity of the concern at the opening of the new year. The principal feature of the equipment is the number of specially constructed machine tools, each one of which is designed to perform some particular operation in the building of the Boyd press and other machinery. The shops employ a system of hardened steel templates and gages to which every part of the Boyd press is accurately finished. This insures an absolute fit for every part and that every part of the same kind shall be exactly alike. It is only in a shop with such special appliances that a duplication of parts can be successfully accomplished.

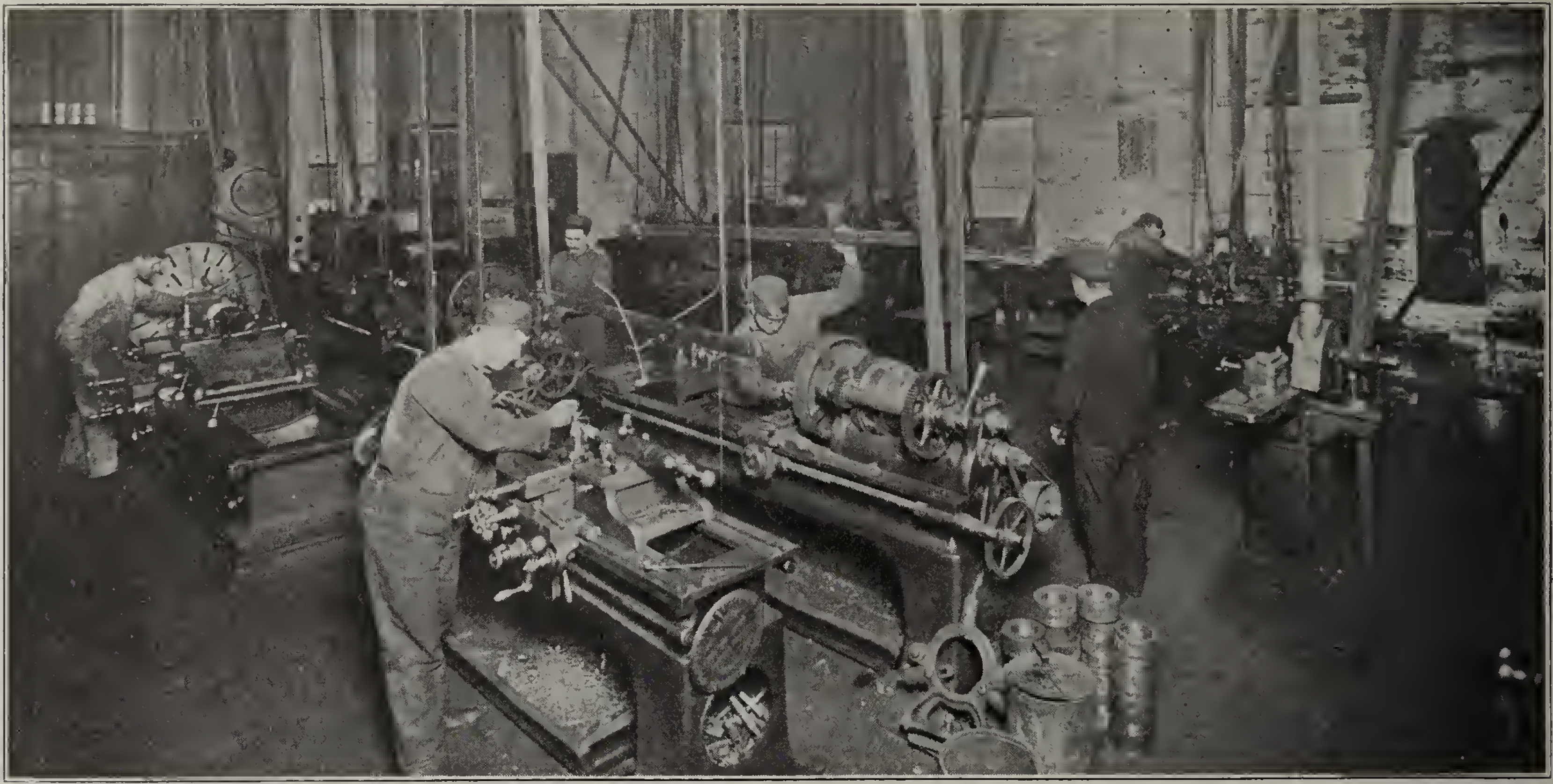
H. J. Flood, President of The Chisholm, Boyd & White Co.

Various minor departments open out from the main machine shop, including lathe room, mold liner and grinding department, tool room, blacksmith shop, shipping, storage and clay testing rooms. An independent well equipped power house adjoining the main building supplies steam power for the entire plant. In fact the shops of this company are complete in every detail.

The clay testing department is worthy of special mention. The matter of testing clays to determine their value for brickmaking purposes is of utmost importance. This company has maintained a very high standard in its work along this line and will recommend the construction of plants only after the most rigid tests have proven that the material submitted is entirely suitable. The management have been so conscientious in this respect that frequently they have refused to accept profitable machinery contracts, because tests made would not justify the building of plants for using such materials in the manufacture of brick. The testing department is in charge of a competent brickmaker and is supplied with all the equipment necessary for the preparation of all kinds of clays and shales and the actual making and burning of full-size brick, and such tests can be relied upon.

The engineering department of the company is another important branch of the business which is given the most careful attention. Experienced and skilled engineers and draftsmen, thoroughly familiar with clayworking machinery, are employed, whose knowledge of the business makes their opinions of value. The company is thus enabled to provide complete plans and specifications for the construction of brick plants. The organization also includes a force of competent erecting men, who are practical brickmakers and burners, and these men have been sent all over the world to superintend the erection of Boyd plants installed in various countries.

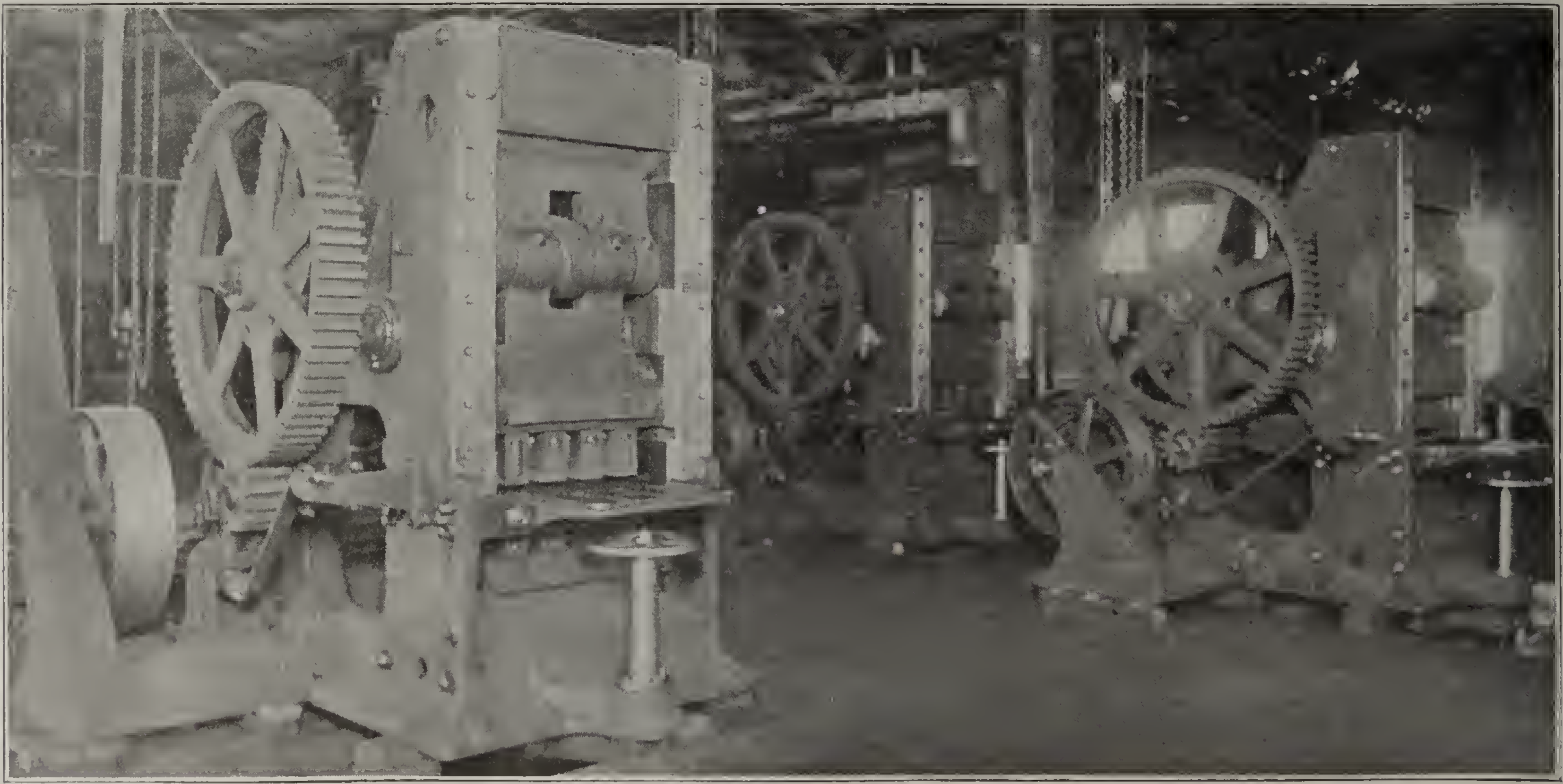
Chisholm, Boyd & White Co. feel an honest pride in the completeness of their facilities and equipment and can justly claim to be the largest exclusive builders of brick presses in the world. Their tremendous success is largely due to the efficient management of Mr. Harry J. Flood, president and general manager of the company, who has been connected with the manufacture of brick and clay working machinery for thirty years and has been with Chisholm, Boyd & White Co. since 1889 and became active manager of the company in 1897.



Corner of Lathe Room Showing Special Tools.

Mr. Flood is an inventor and mechanic, exceptionally skilled. Throughout his connection with Chisholm, Boyd & White Co. that company has been constantly improving and producing new inventions and new ideas for the perfecting of its machinery, and most of these have been the work of Mr. Flood. In fact, most of the improvements made to the Boyd brick press, by which it has reached its present stage of perfection, are due to his indefatigable experimental work, as the business success of the concern has been due to his indomitable energy and progressive methods. Mr. Flood is a practical brickmaker and is frequently consulted outside of the business of the company, in matters relating to clay-working properties, and is an acknowledged authority on dry pressed brick. Previous to his connection with Chisholm, Boyd & White Co. he superintended the erection of the largest brick manufacturing plant ever erected in the Chicago territory up to that time.

The accompanying group picture shows something of the extent and completeness of the Boyd line of brick machinery. Only those, however, who have seen the Boyd press in operation can fully appreciate its appearance of massiveness, strength and perfection of workmanship. The "Special" heavy-duty Boyd brick press and the new standard Boyd brick press are models of mechanical skill and workmanship and are built in three sizes,—two, four and six molds. The largest of these, the six mold size, has a capacity of 30,000 brick per day of ten hours and weighs 50,000 lbs.



Boyd Presses on the Erecting Floor Prior to Shipment.

It is not necessary to go further into a description of the machinery manufactured by this firm except to say that the line includes dry pans of exceptional strength, durability and grinding capacity and also clay mixers, screens, elevators and other necessary machinery used for the manufacture of brick by the semi-dry clay process.

A Corner of the Shop.

## BUILDING PROGRESS.

The first number of "Building Progress," a publicity magazine which the National Fire-Proofing Co., of Pittsburg, is issuing, contains volumes of useful information relative to fire proof construction; heights of buildings; foundations, and general information on similar lines. This is a move in the right direction, as publicity has been much neglected, by manufacturers of clay products in general, until the past few years. A revival is now in progress in this line, and as usual the more progressive companies are the ones to take the initiative in the matter. To those interested we would suggest that they secure a copy of this useful magazine.

## WANT NEW CONNECTIONS.

Owing to the inability of the Wisconsin Lime & Cement Co., one of the leading face brick concerns in the city of Chicago, to take care of the demands made upon them for face brick, they desire to make new connections with firms within easy reach of Chicago, manufacturing brick suitable for this purpose and those who desire to reach the Chicago market will do well to communicate with them.

## LOST A TOOTH.

In operating their plant at Port Costa, Cal., the Carquinez Brick & Tile Co. report that recently they lost a manganese steel dipper tooth from their No. 20 Marion steam shovel.

The tooth weighed 42 lbs., measured 20 in. long, 6½ in. at widest part and 4½ in. thick. For three days they hunted high and low for this tooth. Finally their elevator became choked with clay. The Williams grinder was producing so much clay the elevator could not handle it.

In cleaning the elevator boot one of their men found this dipper tooth a little bit bent. It had gone through the grinder without their knowledge. They had no delays; they did not even shut the machine down; no breakage of any kind and absolutely not one cent repairs.

In the meantime they had telegraphed east for another tooth to come by express. The tooth arrived, with $5.00 express charges, but having found the lost tooth it was simply straightened and put back on the shovel. The dipper is now biting hard to keep that hungry Williams grinder busy.

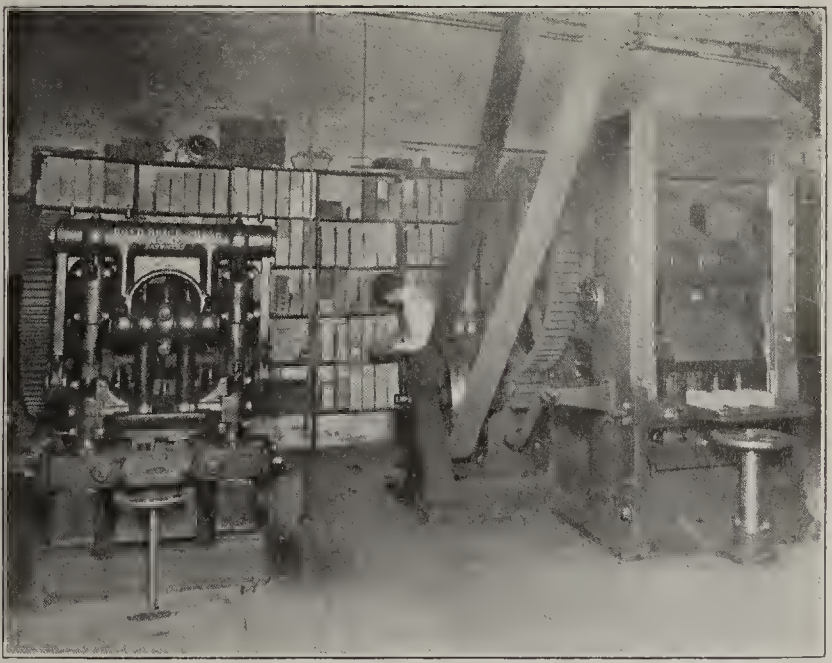
This company uses the stiff mud process in making their chief output, common and face brick.

## THE NEW STEELE CATALOG.

The merits and beauties of the "New South" brick-making machinery are set forth in an attractive manner in the handsome new catalog which is issued by J. C. Steele & Son of Statesville, N. C. This company was established in 1889 and this is the eleventh catalog which they have issued. Since their organization they have grown to be an important factor in the development of the clay industry of the South and their line of stiff mud machinery is in use in many hundreds of plants throughout the southern states. The catalog is handsomely illustrated throughout and has a two-page engraving illustrating the famous No. 5 Steele brick machine, which has a capacity up to 100,000 or more per day. This machine is also made in smaller sizes, the No. 4, No. 3, No. 2 and No. 1. The catalog also shows the Steele automatic rotary end cutters and the Steele side cut automatic cutter, also an automatic tile table and a hand tile cutter. Other machinery represented in the catalog are the Steele disintegrators, pug mills, granulators, hoisting drums, cars and other equipment. A detailed description and drawings illustrate fully the Steele system of brick drying, which has become very popular in the South.

## A GOOD BUSINESS CONNECTION.

The Manufacturers Equipment Company, of Dayton, Ohio, has been successful in engaging the services of Mr. I. R. Lamport, of Mapleton, Kansas, in a selling capacity. Mr. Lamport will travel through Kansas, Oklahoma, Arkansas, and Missouri, and will represent the full line of his company in these states. Mr. Lamport is an indefatigable worker, and has had many years of active experience in the manufacture of clay products, which peculiarly fits him to handle his new line of work successfully. In addition to this he has a wide range of acquaintances in the territory in which he will travel, which is largely the result of his pleasing personality and the uniformly courteous treatment which he extends to everyone with whom he comes in contact.



A View in the Clay Testing Department of the Chisholm, Boyd & White Co.

## HARRISON EVERETT ASHLEY.

After returning from the Middle West Convention at Chicago and resuming his duties at the clay products laboratories of the Bureau of Standards, at Pittsburg, the well-known ceramic chemist, Harrison Everett Ashley, was stricken with a mastoid abscess, which made an immediate operation necessary. Several days later a second desperate operation was resorted to, but meningitis developed and on February 4th Mr. Ashley departed from this life.

The deceased was born at New Bedford, Mass., August 2, 1876. He received a thorough education in the public and high schools of his native city, as well as at the Massachusetts Institute of Technology at Boston, from which institution he was graduated in 1900 with the S. B. degree in Chemical Engineering.

After several years' work in steel mills, as a chemist, he entered the employ of the Homer-Laughlin China Co., the well-known pottery firm at East Liverpool, Ohio, where he did practical work and was placed in charge of the placing and drawing. He then entered the ceramic department of the Ohio State University to take a special course along the lines of clay working, a subject to which he was immensely attached. He was an enthusiastic student and was remarkably successful in his college work.

Harrison Everett Ashley.

During his residence at Columbus, he was elected to membership in the honorary Sigma Xi fraternity, an organization intended to encourage scholarship and research. Mr. Ashley then returned to East Liverpool and was transferred to the great newly built pottery plant at Newell, W. Va.

In 1906 he was married to Miss Eva Susan Greenamyer, of Latonia, Ohio, a union of extraordinary happiness and devotion. His wife and a young daughter as well as a large circle of friends mourn the loss.

In 1908, Mr. Ashley received an appointment as assistant ceramic chemist, with the Technologic Branch of the U. S. Geological Survey and in 1910, upon the transfer of the work to the Bureau of Standards, he was promoted to the position of associate chemist. In this work, the departed found his greatest joy and he put every effort into his research duties with the result that he produced brilliant investigations in the field of colloidal chemistry, dealing with the fundamental conceptions of clay and the control of its properties. At the time of his death he had just finished a large report upon this work, which is now being printed.

Mr. Ashley has contributed many articles to technological literature and he was at the period of his greatest intellectual activity when stopped by the hand of death. His contributions include articles on the alloys of tellurium; the thermal analysis of slags by the use of the triaxial diagram; a study of the gas engine cycle by means of a logarithmic triaxial diagram; articles on the effect of different lime compounds upon clays; the analysis of diagrams representing the crazing and shivering of white ware glazes; the production of lustre effects on glass; a study upon the colloidal nature of clays; an investigation on the control of the colloidal properties of clays; a report upon the testing of pottery materials; a research dealing with the mechanical analysis of clays; an article on the control of colloidal slimes, and many other contributions.

As a man, Harrison Everett Ashley was of a cheerful and modest disposition, a sincere and devout Christian with a heart full of charity to all, a delightful companion, a good citizen, greatly concerned in the questions of the day. He was in truth a good man though fearless in his opinions, and the most faithful of friends. He met death bravely, realizing full well his serious condition, with never a complaint, though conscious up to the time when his spirit took flight. In him we have lost an investigator whose place cannot be taken, a loyal friend and one of those high-minded, pure and unselfish men so rare in this crowding and pushing world of ours.

Our sympathy goes out to his bereaved family, his widow, child, parents and brothers, and his memory will live with us always.

## GETTING READY FOR SPRING WORK.

There is said to be a noticeable activity in the market for clay products, and the forehanded superintendent is getting ready to begin work as soon as the season opens.

In the opinion of manufacturers of long experience, the proper time for the purchase of machinery and supplies, and for contracting for material, and preparing for the spring work, is as early in the year as possible. Especially the examination and selection of machinery, giving a close study to the particularly valuable features of each article as applied to the requirements, should be taken up early so as to give ample time for comparisons as to the utility of each under the conditions which govern the work in hand.

The man who opens his work in the spring with his equipment in first class order, has a much greater opportunity to make money than one who does not. From the standpoint of the labor, which forms so large an item of expense in any work, good machinery and tools are especially profitable. Men will work harder and more cheerfully, and accomplish more definite results, with the implements which they start with at the beginning of the season in good order. The habit of cheerful, energetic work, formed early in the season, is much more readily maintained than if the early work were accompanied by break-downs and other delays due to defective equipment.

In the line of machinery and tools, attention should especially be given to those devices which take the place of hand labor, and reduce the labor cost of performing the work.

It is an established fact that men will work better with first class implements, and the best workmen seek employment with the plant which has the best and most modern machinery, and which keeps it in the best condition.

# The Badger Convention

## Clay Products Manufacturers, Gathered at Milwaukee, Plan the Erection of a Model Brick House as a Permanent Exhibit at the State Fair

The eleventh annual meeting of the Wisconsin Clay Manufacturers' Association held in Milwaukee, Wis., February 1st, 2nd and 3rd, at the St. Charles Hotel was the occasion of a departure from "beaten tracks," when steps were taken toward the erection by the association of a model brick dwelling on the state fair grounds, to serve as a permanent exhibition of the desirability and permanency of brick as a building material.

This is a movement in the right direction, and should receive the support and co-operation of all interested in the ultimate supremacy of brick as a building and paving material.

The attendance was satisfactory, and it is a matter of regret that all brick manufacturers cannot be present at these state meetings, which are always so beneficial to those in attendance.

The first session, Wednesday morning, Feb. 1st, was devoted to registration of members, arranging the various exhibits, and renewing and making acquaintances among those present. As many of the delegates did not arrive until Wednesday afternoon, no matters of particular interest came up until that time.

Delegates at the Wisconsin Convention.

At two o'clock Wednesday afternoon, President John Ringle called the meeting to order and gave the opening address which follows:

Gentlemen of the convention: It is gratifying to the Executive Committee that so many of the clay workers of Wisconsin are present at this convention.

I hope that the interesting programme which has been prepared and the questions of importance which are to be considered, will not only amply compensate you for your attendance, but will also enlist your united efforts to place the industry which we represent in the position it deserves in our state.

The organization in Wisconsin is comparatively an infant among the clay working organizations. We begin to realize, however, that there is not only ample reason for our existence, but real necessity for united and persistent effort.

It is also pleasant to note the presence of so many representatives of clay working implements and clay journals. They are our friends in need who never tire of giving aid and comfort, and of saying a good word for our product at all times and under all circumstances.

Our meetings are made interesting and beneficial to those in attendance by the reading of papers and discussion of subjects designed to improve our product, and minimize our difficulties. These are always interesting and important subjects and will as heretofore remain the essential features of a convention of clay workers.

It has become clear to the observant producer of clay products that an equal opportunity with other building materials for marketing our product is essential for the future development of the clay industry in our state.

We are not only manufacturers but also salesmen. When the raw material has been mined and prepared, made into brick and tile, having safely passed the difficult ordeal of drying and burning, having invested our money and labor, we still have to transport our product to the consumer. Many of us rely exclusively, and the further development of the clay industry in Wisconsin relies wholly, upon railroads for transportation. At the present time the clay industry in our state is at great disadvantage as to railroad rates, compared with those in force in our neighboring states, and with rates upon other building materials. We are entitled to an equal opportunity and it is our duty to insist upon a just regulation. Your committee on railway rates will make a report. The subject is of vital importance to every clay manufacturer.

Another subject which should receive earnest consideration is the subject of publicity. We have depended for our market upon the superiority of our product for building purposes, and our customers are those who know these qualities. That market will always remain to us. But what percentation of the people know that brick is the most durable, the most artistic, the most sanitary, and with that the cheapest of all building materials?

This subject is worthy of your thought and you will find the proposed plans of our secretary for the erection of a model brick dwelling or other structure at the state fair grounds worthy of consideration.

This is essentially an age of advertising. The articles of merchandise which is most persistently in the public eye by the way of printers' ink derives a corresponding benefit, even when not always the most deserving. The clay industry owes it to itself and to the public interest to make its superiority known. Every manufacturer of clay products owes it to the industry to make a proportional annual contribution for judicious and persistent advertising. We may not obtain personal results the first month or the first year, but it will be placing bread upon the waters which will eventually return a hundred fold; when the facts permeate the public mind that with clay products only can a structure be reared, whether cottage or mansion, on the farm or in the city, with all the essentials of life and comfort, artistic and inspiring, secure against the elements and free from decay, a property which will not depreciate in value, a home not only for the present, but for all future time, at less expenditure of money than for any other building material, all things considered, then will we have done our duty to ourselves and to the public, then will we have made one blade of grass to grow where none grew before. And by giving the industry the deserved prominence in the mind of the public we will attract the attention of the directors of our great institutions of learning to the fact that schools or courses of ceramics are essential in all modern educational institutions, and that manual training schools which give instructions in brick-laying and teach other essential accomplishments in the builders' art should be established in all our cities.

We have reason to be gratified for the assistance rendered our association by the Geological Survey of our state, represented by our worthy secretary. I am also pleased to note that a special legislative committee, appointed at the last session, has reported in favor of a law for the further extension of industrial education in our schools.

Another legislative subject of vital interest to every member of this association is the proposed legislation in regard to industrial insurance and employers' liability, which is to be discussed by a member of the special .legislative committee. If Wisconsin is to be the pioneer in the matter of industrial insurance in this country we should be prepared to understand the situation, and our future relations as employers of labor to those whom we employ.

We are under obligation to the gentleman for being with us here, to explain the workings of this proposed legislation, and I urge a close and respectful attention.

The great importance of all the subjects before us deserve our most careful consideration, and would seem destined to make this convention one of the most important in our history.

Let us not fail, either in our duty or opportunity.

This was received with pleasure and was followed by the report of the secretary and treasurer. Reports of the standing committees including the mutual fire insurance, publicity, legislation and railway rates were then heard. The president then appointed the special committees. A matter of much importance to the association was introduced by Secretary S. Weidman, of Madison, Wis. This was the proposed exhibit of a model brick dwelling to be erected on the state fair grounds. The matter was discussed at length by the delegates, who realized the importance of taking some action looking toward a permanent exhibit of burned clay products at the state fair which is held annually in Milwaukee. This matter is being considered in a new light by a great many of the manufacturers today and those present at the Milwaukee convention decided that the time was ripe for action. It was recommended that the matter be taken up by a committee, of which Prof. Weidman is chairman, and a report be made at the next annual meeting of the association. This matter will include the cost of the structure, location and other details that are of vital importance. There is no doubt that definite action will be taken and that within a short time, the Wisconsin clay working industry will be represented at the state fair with a creditable display.

Officers of the Wisconsin Meeting, John Ringle, Pres., on the Left, Pro. S. Weidman, Sec., in Center, E. H. Korrer, Treas., on the Right.

### Thursday Morning Session.

At 9:30 o'clock Thursday morning, the session convened and the list of delegates had considerably increased. Mr. J. G. Hamilton, of Grand Rapids, Wis., was first on the program with a paper entitled "Some of the Difficulties in Operating Medium Sized Plants," which was highly instructive and was followed by an interesting talk by a number of those present. Prof. Ross C. Purdy, Columbus, O., was on the program for an address, but illness prevented his attendance at the meeting. Prof. Harvard of the Wisconsin University acted in his place and gave a very interesting talk on Wisconsin clays in general, fire clays in particular. This was much enjoyed by those present and was replete with matter of considerable information for everyone. This was followed by several questions for discussion.

### Thursday Afternoon.

Senator A. W. Sanburn, chairman of the Industrial Insurance Committee, of Ashland, Wis., made the opening address at this session. His subject being: "The Proposed Legislation Relating to Employers' Liability and Industrial Insurance" It was very instructive and elicited considerable interest.

Mr. Bruce then gave a general talk on matters of interest concerning the Wisconsin Manufacturers' Association, of which he is the secretary.

Further matters were discussed and the meeting adjourned for the day. A theater party had been announced and the delegates prepared to attend this in a body.

### Friday Morning.

The opening of the Friday morning session began with a paper on the "Present Tendencies in the Manufacture of Clay Working Machinery," by Davis Brown, which appeared in our last issue.

E. H. Korrer, of Fond du Lac, Wis., then read his paper on "The Capacity of Brick Structures to Withstand Fire." This was of more than usual interest and was of a very instructive character.

Several matters were then brought up for discussion, and the reports of the committees were heard. The committee on resolutions made the following report:

Resolved, That this association indorses the movement inaugurated by the Building Brick Association of America in its educational campaign to popularize and extend the use of brick as a building material, and appreciates the work already accomplished by that association in the production and distribution of literature which has been of practical value and aid in extending their work.

Resolved, That this association indorse the recently organized Wisconsin Manufacturers' Association and elect a member of this association to represent it in their association.

Whereas, It appears to this association that there is urgent need of a laboratory for testing clays and clay products, and also the need of a course of instruction in ceramics, established at our State University for the purpose of assisting the clay-working industry in the further development of our clay resources; and,

Whereas, There is also an urgent need of proper training in the art of bricklaying in our schools; be it

Resolved, That the Wisconsin Clay Manufacturers' Association respectfully request that the University regents provide for a clay testing laboratory and provide for a course of instruction in ceramics at the State University, and further that the State Department of Instruction provide for establishing schools or courses of instruction in bricklaying in connection with other courses in industrial education in all the larger cities of our state; and be it further

Resolved, That the hearty thanks of every member of the association be extended to the retiring officers.

(Signed.) G. C. Stoll,
L. T. Crabtree,
J. J. Corey.

The nominating committee recommended the following names for officers who met with the approval of the delegates, and they were duly elected:

President, W. J. Craney; vice-president, Sam Guenther; secretary, Prof. S. Weidmann; treasurer, E. H. Korrer.

The president appointed the following standing committees: Railway rates—John Ringle, A. W. Helker and

E. H. Korrer; legislation—F. L. Sanburn, F. Vogt and Prof. A. Weidmann; publicity—Prof. F. Weidmann, C. W. Lansing, Geo. Schwartz and F. L. Crabtree; liability and fire insurance—F. L. Sanburn, E. H. Korrer and Oscar Zimble.

After further discussion relative to the permanent exhibit, the meeting adjourned sine die.

A number of exhibitors were present, among whom were the following: C. J. Peterson, Weller Mfg. Co., Chicago; S. A. Williams, Sackett Screen & Chute Co., Chicago; H. J. Votaw, of J. D. Fate Co., Plymouth, O.; G. C. Stoll, American Clay Machinery Co., Bucyrus, O.; A. Potts, of C. & A. Potts & Co., Indianapolis, Ind.; Edwin A. Allen, The Ohio Ceramic Eng. Co., Cleveland, O.; L. C. Stingle, Milwaukee Solvay Coke, Milwaukee, Wis.; Clarence D. Erlewine, Marion Machine, Foundry & Supply Co., Marion, Ind.; Davis Brown, H. Brewer & Co., Tecumseh, Mich.; G. E. Luce, Tate, Jones & Co., Pittsburg, Pa.; E. R. Frazier, Chamber Bros. Brick Machine Co., Philadelphia, Pa.; Geo. J. Dietrich, Chicago Fire Brick & Retort Co., Chicago; J. J. Moroney, Chicago Brick Machinery Co., Chicago.

## ROSTER WISCONSIN CONVENTION.

1. H. J. Votaw, J. D. Fate Co., Plymouth, O.
2. S. Weidman, Wisconsin Geological Survey, Madison, Wis.
3. John Ringle, Ringle Brick Co., Wausau, Wis.
4. E. H. Korrer, Fond du Lac Pressed Brick Co., Fond du Lac.
5. C. D. Erlewine, Marion Machine Foundry & Supply Co., Marion, Ind.
6. Davis Brown, H. Brewer & Co., Tecumseh, Mich.
7. G. C. Stoll, The American Clay Machinery Co., Bucyrus, O.
8. L. C. Stingl, Pickands, Brown & Co., Milwaukee.
9. Erwin Fricks, Wm. Fricks & Sons, Manitowoc, Wis.
10. F. Vogt, Milwaukee Building Supply Co., Milwaukee. Wis.
11. A. W. Hilker, Hilker Bros. Brick & Mfg. Co., Racine, Wis.
12. Gustav Schram, Ringle Brick Co., Ringle, Wis.
13. W. J. Craney, Craney & Spaulding, Kenosha, Wis.
14. F. W. Wood, Building Brick Association, Indianapolis.
15. E. R. Winchell, Reporter, Chicago.
16. Oscar Zimbal, Zimbal Bros., Sheboygan, Wis.
17. F. L. Sanborn, Sanborn Brick Co., Portage, Wis.
18. B. LuBlanchard, Wis. Composite B. Co., Milwaukee, Wis.
19. E. R. Frazier, Chambers Bros. Co., Chicago. Indianapolis.
20. Geo. Schwarz, Ricketson & Schwarz, Milwaukee, Wis.
21. A. Potts, C. & A. Potts & Co., Indianapolis.
22. G. E. Luce, Fate, Jones & Co., Inc., Pittsburg, Pa.
23. L. T. Crabtree, Alden Clay Products Co., Crandon, Wis,
24. Jos. Norton, Hollandale Brick & Tile Co., Hollandale, Wis.
25. Emil Louis, Oconoto, Wis.
26. Frank Wozniak, Athens Brick & Tile Co., Athens, Wis.
27. C. J. Peterson, Weller Mfg. Co., Chicago.
28. A. O. Zerrenner, Zerrenner Bros., New London, Wis.
29. I. J. Covey, Improvement Bulletin, Minneapolis.
30. F. T. Havrad, University of Wisconsin. Madison, Wis.
31. A. F. Oeder, 5455 Drexel Avenue, Chicago
32. S. Gunther, Gunther Bros. B. & T. Co., Pt. Washington,Wis.
33. F. Gunther, Gunther Bros. B. & T. Co., Pt. Washington,Wis.
34. F. Gunther, Gunther Bros. B. & T. Co., Pt. Washington,Wis.
35. F. W. Boult, Good Roads Machinery Co., Ft. Wayne, Ind.
36. Richard G. Hoffman, Chicago.
37. Warfield Webb, Brick and Clay Record, Chicago.
38. F. R. Minton, Mexico Brick & Fire Clay Co., Mexico, Mo.
43. John Le Mane, F. G. Bolles, Allman Eng. Co.. Milwaukee.
44. Geo. I. Dietrich, Chicago Retort & Fire Brick Co., Chicago.
45. E. A. Allen, Ohio Ceramic Engr. Co., Cleveland.
46. H. A. Hilker, Hilker Bros. Mfg. Co, Racine, Wis.
47. E. C. Guhr, 703 Forty-ninth Avenue, West Allis, Wis.
48. Geo. H. Hartwell, Chicago.
49. Ed. Fricke, Manitowoc Clay Co., Manitowoc, Wis.
50. Samuel A. Greeley, Supt. City Incinerator, Milwaukee, Wis.
51. Jos. Poppert, Milwaukee Building Supply Co., Milwaukee.
52. Edwin Underborg. Milwaukee (Wis.) Building Supply Co.
53. A. A. McClamrock, Wallace Mfg. Co., Frankfort, Ind.
54. John J. Moroney, Chicago Brick Mfg. Co., Chicago.
55. A. W. Sanborn, State Senator, Ashland, Wis.
56. Wm. Geo. Bruce, Mchts. & Mfrs. Assn., Milwaukee, Wis.

## PUBLICITY MAGAZINE.

The Underfeed Stoker Co., with offices in the Marquette building, Chicago, issues a most useful and educational magazine entitled the "Publicity Magazine." This is the ninth year of its publication and the January number contains unusually interesting matter relative to the Jones Stoker and allied interests.

## THE NORTHWESTERN CLAY ASSOCIATION.

The third annual convention of the Northwestern Clay Association, composed of brick and clay manufacturers and others of Minnesota and adjoining states, will be held in Minneapolis at the rooms of the Builders' Exchange, March 15 and 16. This is the first session to run over one day, but the program which has been provided is such as to require more time. The meetings have been growing in interest and attendance, and it has been felt necessary to devote more time to them. General arrangements are in the hands of Axel Anderson, of the M. Anderson Brick Company, Minneapolis, secretary of the association. The program committee consists of Ira C. Jones, of Minneapolis, chairman; Rufus P. Morton, of Brickton, and R. B. Hinckley, of Luverne. E. H. Cobb, of Minneapolis; J. P. McLean, of Menomonie, and F. J. Nixon, of Duluth, have charge of the banquet arrangements. The banquet will be held on the evening of March 15.

The program is not wholly made up, but unofficial acceptances have been secured from a number of speakers. The subjects, so far as they have been outlined, will be as follows: "Finding a Market;" "Conducting a Successful Yard in the Country;" "Conducting a Successful Yard in the City;" "Finding the Cost of Production;" "Architectural Possibilities of Common Brick" (this to be given to a prominent architect): "Advertising Common Brick: Can It Be Made to Pay?" "Tile and Drainage;" "The Best and Cheapest Way to Dry Bricks;" "The Best Way to Maintain Prices;" "The Best Way to Burn Brick;" "Will Our Industries Be Benefitted by Industrial Education?" "Is It to a City's Permanent Benefit to Build of Brick?"

On the second day there will be a question box, with a general discussion.

One subject which will be discussed will be that of the erection of a model brick residence on the state fair ground as a means of advertising the industry.

The machinery men, who have been rather neglected as to time, in the past, are to be allotted sufficient time for their needs.

## WASHINGTON CLAY WORKERS' ASSOCIATION.

Fifty delegates from all parts of Washington, Oregon and British Columbia attended the sessions of the Washington Clayworkers' Association convention held in the Chamber of Commerce, Seattle, Wash., Jan. 26 to 28.

The convention was opened by T. J. Mackintosh, first vice-president. The opening address was made by R. H. Thomson, city engineer, on "Clay and Its Practical Uses."

The afternoon was given up to papers and discussions. T. G. Dennis spoke on "Kilns and Their Economic Use," and those taking part in this discussion were H. Shaffer, W. F. Geijsbeek and M. Niedergasaess.

D. S. Lohman, secretary of the Seattle Bricklayers' Association, gave a paper on "Bricks vs. Concrete," treating the subject from the point of view of the bricklayer. The afternoon closed with a discussion.

The election of officers took place at 9:30 a. m., followed by papers by W. T. Houlahan on "Raising the Standards of Brick on the Seattle Market;" F. W. Eastman, on "Clay vs. Plaster Partition Tile;" Prof. N. K. Benson, on "The Chemistry of Clays;" Joseph K. Moore, on "Publicity Methods," and concluded with a discussion of the lien law. A banquet took place in the evening at the Arctic Club.

T. J. Mackintosh, of Tacoma, was elected president; W. T. Houlahan, first vice-president; J. T. Davie, second vice-president; D. F. Power, treasurer; James Gibson, secretary; B. J. Megrath, Frank Lolise and Joseph K. Moore, executive committee.

# Gas Fired Continuous Kiln

## Talk Given by Mr. Eben Rogers of Alton, Ill., Before the Middle West Convention, Chicago

In the first place I would like to change the subject a little and make it read, "The possibilities of the continuous kiln in connection with the use of producer gas." I think it would be very interesting to study it from that point of view. I can only talk in a general way and invite questions or discussion after the talk on any specific point on which the different members are interested. I might have written a paper a mile long and then not nave touched on some of the questions that the gentlemen would like brought out. There are a number of gentlemen present interested in gas-fired kilns and there is no reason why we should not get through this discussion all the information wanted on the subject.

In the first place I find that a great many people haven't correct ideas of what a continuous kiln is It might be well to go over that briefly. The object of the continuous kiln is to utilize as nearly as possible all the heat units in coal. As you know, in the old methods of firing in the ordinary type of kiln you get it up to the highest heat and then let it all go to waste, with the exception of those who are using waste heat dryers in saving a large portion. In the construction of continuous kilns one of the mistakes that we have made in this country, in all types of kilns possibly, is that they have been built too cheaply. The matter of making an estimate of the cost of a continuous kiln should not be considered very seriously. It should be built from the standpoint of putting every dollar in it that will make it last and stand up better for the fire.

The expansion and contraction is the greatest enemy that we have in this kiln business and it seems almost impossible to build them so they wont be more or less affected by either the expansion or contraction, and especially where you are burning refractory ware, such as paving brick or fire brick. The saving in a continuous kiln will range from 50 to 70 per cent in fuel over the old type of kiln, of course, varying according to the age and type of old kiln with which you compare it. Some down draft kilns are very well built and economically managed and in that case you would not be able to save so much as you would in the old down draft kilns that are dilapidated.

Another point is the centralization of your fuel supply. You all know what a nuisance it is to have your cars switched around and wheeling the coal and wasting it around the place. In the continuous kiln your coal supply is centered at one point and you are enabled to put in a coal handling apparatus that will allow you to handle this coal economically without much expense or annoyance to yourself. Formerly the coal cars were always in the way of the brick cars. We have now a pit for dumping these cars. The coal is deposited in a steel bin over the producer by means of a belt conveyor and the fireman simply pulls a lever when he wants to fire and fills his hopper. One man handles all the coal and has a great deal of time to spend for other work. If necessary we could take the office force and go out and unload a car of coal.

Another thing: I am frequently asked about the saving by the use of gas. It is not particularly the use of gas that saves the fuel, it is the use of a continuous kiln. There are just as many heat units in coal and you cannot get any more out of it by converting it into gas than you can from the coal itself, but the utilization of this heat in preheating the ware and the utilization of the heat in the cooling ware for heating the air of combustion is where the saving comes in. In my opinion producer gas fuel is the most economical, excepting in the oil and natural gas region.

I have been asked about gas in connection with the ordinary down draft kiln. When burning producer gas you must have hot air for combustion; in other words, you must use a regenerator and the continuous kiln is an ideal regenerator. In the steel furnaces and glass furnaces they build regenerators for heating the air of combustion. You have in the continuous, regenerators in two or three chambers of previously burned brick. In passing the air through these you have it heated within two or three hundred degrees of the desired temperature and then you supply gas to bring it up these two or three hundred degrees, which is a very small amount. Unless you build regenerators for preheating the air, which would be an expense which would not justify itself, it would require just as much coal through the gas producer as it does in the furnaces, which would mean a tremendous outlay in gas producers, which would not justify itself in that case. So the idea that people have, that the economy is due to gas alone is entirely wrong. It is due to the continuous kiln. And, as I said before, the method of firing the continuous kiln by gas seems to be the most economical way.

Another thing, the continuous kiln is a matter of circulation. In foreign countries they have been burning the continuous kiln for years by the use of stacks. But their kilns have been small chambers and the resistance to the draft has been proportionally small. When they were introduced into this country, the Americans were not satisfied with burning their ware in such small quantities and they undertook to build kilns of the size that they wanted and undertook to create the draft by the use of stacks. But it has been demonstrated that stacks will not overcome the resistance of pulling air through such large bodies of brick and fans have come into use. With the fan you can control the air regardless of the weather conditions outside. You can increase or reduce your draft to suit the occasion, but you will usually find in burning brick or any other material that you will need about all the draft that you can get. In hollow ware the opening is larger and the ware is thin and you will sometimes have to reduce your draft from what the fan would give at full speed. But the matter of circulation was the one great stumbling block that we ran across in the first kiln. We had all sorts of experts and advice, but after we sifted all our troubles down we found that they were all due to lack of circulation. Unless you can get enough circulation, the heat comes on your ware before it is dry and cracks it and makes a bad looking mess. After getting your kiln designed with chambers and flues in proper proportion, the regulation and operation is very simple.

What we are lacking in this country is young men who are willing to work, who have a technical education and understand something about the process of burning, the process of heating and the effect of heat, also the process in the manufacture of brick, and the only way we can get this is by supporting the University according to the discussion which has just gone before, and we certainly need those men in this business. The lack of them is what has held the business back, in my opinion. I know that if I had had the advantage of the education in that line that is available now, I could have saved myself a whole lot of worry and trouble. At the same time, with this education they do not want to get it into their heads that the mere education is going to get them out of hard work. They will have to work just the same. The idea of some of them is that if they have the education, that is enough; but it won't carry them through. They have "got to get a move on" in a brick yard. (Laughter and applause.)

I don't know but what that, in a general way, is a description of a gas fired continuous kiln. No doubt some of you have some points in mind that I have not touched upon, and with all the continuous kiln men that are here in the room I don't know why we could not bring out a full discussion and enlighten anyone to the best of our ability on this subject. I thank you, gentlemen, and I would like to answer any questions.

Mr. J. M. Mamer: I would like to ask Mr. Rodgers one question. Do you use the Youngren type of kiln?

Mr. Rodgers: Yes. We use the Youngren type of gas fired kiln. That is the largest used type in this country that I know of. I think there are possibly a few gas fired kilns of other types but I think that is the one that we are most familiar with.

Mr. Richardson: As I understand it, the second kiln you built with a single row of chambers?

Mr. Rodgers: Yes, sir.

Mr. Richardson: How many?

Mr. Rodgers: Fourteen.

Mr. Richardson: How many chambers do you keep between the one you are firing and the one that you are emptying?

Mr. Rodgers: There would be three or four.

Mr. Richardson: Would you like to have four?

Mr. Rodgers: We would like to have four; yes, sir. That depends a great deal upon the ware that you are working with. If your ware is inclined to check very easily, four would be better, but three will work out in the ware that does not check easily.

Mr. Richardson: How many chambers ahead are you pulling from the one that you are firing?

Mr. Rodgers: The kiln has fourteen chambers. The idea is to be unloading one and filling one, watersmoking two, heating up three, gas firing three and cooling four, and we have a separate arrangement for watersmoking. We are watersmoking two chambers, one with a lower temperature and one with a higher temperature. Then the next kiln is connected with the main draft flue. I might add here that we found a great deal of trouble in our material with sulphur gases eating up our fan and everything that it came in contact with. It seems that as soon as they come in contact with moisture of any kind they will attack most anything. In the second kiln we separate this operation of watersmoking and burning. One fan operates through these two watersmoking chambers, taking heat independently from two chambers ahead of the wheelers. Then when we turn the main draft into the chambers it is practically dried and free from moisture and this air going out through the other fan that is without this moisture does not seem to affect the fan in any particular way. It doesn't eat it up and it will last a long time. In the old kiln it ate up a fan every eight or ten months.

Mr. Richardson: Do you use a man at the producer and another to watch the burn?

Mr. Rodgers: We have a man at the producer—one burner watches both kilns.

Mr. Richardson: Do you have a man at each producer?

Mr. Rodgers: We have a man at each producer but they have nothing to do with the burning.

Mr. Richardson: If you had only one kiln you would still need a man at the producer and a man to watch the kiln?

Mr. Rodgers: Yes, sir; I think that would pay because the producer man has about all that he can attend to to make good gas and keep his fire in the proper shape. He would be inclined to neglect the kiln or his producer if he had both duties to perform. Another thing is, if you are going to use a high grade man in this burning, who understands the history and technical points of it, he won't fancy firing the producer.

Mr. Richardson: He looks after the man who runs the producer?

Mr. Rodgers: He looks after the man who runs the producer; yes, sir.

Mr. J. R. Moore. Denny, Renton Clay & Coal Co., Seattle, Wash: How much difference in the temperature are you able to get throughout the kiln? We have a kiln that has a narrow vitrification range and I should think you would have to work pretty nearly within a limit. Are you able to get control of your heat?

Mr. Rodgers: We have never measured the heat in the bottom of the kiln, but our clay has a very narrow range of vitrification and we have to be very careful of it. We vitrify brick on the bottom and top by using care, without injuring the top. I may add that we have very good control of our heat. The gas is taken into this 40-ft. chamber, or whatever length it may happen to be, through ports or valves that are on 3½-ft. centers. So every 3½-ft. you have control of the amount of gas that goes in there. 1030 deg. C. is the heat we aim to get; if we get 1050 or 1060 deg. we are liable to get some pretty bad stuff.

Mr. Moore: We are closer than that. 1040 deg. means distorted ware all over our place.

Mr. Rodgers: The matter of draft is very easily regulated. If you have to carry such an even temperature all through, you would have to carry a higher draft. The stronger the draft the more your temperature would be throughout the chambers. But it would use a little more fuel that way.

Mr. A. F. Greaves-Walker: I would like to ask Mr. Rodgers a question. How high a heat can you get in the chamber ahead of the fire before it is necessary to put on the gas, and can fire brick burning temperature be reached?

Mr. Rodgers: We have burned samples of fire brick in with our paving brick; we turned out very fair fire brick. We didn't care to give it the heat that we could, for those few samples. It would ruin the paving brick. It seems to me that there is no trouble getting a very high heat in there, because if a man happens to open one of the gas valves too far or you get a leak somewhere, it don't take but a few minutes to make the ware in the flame run like water.

Mr. Walker: You haven't fully answered my question. I asked you what temperature you got in the chamber ahead of the fire before putting on the gas?

Mr. Rodgers: We have had chambers shrink as much as two inches before any gas was ever put on them. This would mean that the heat would be very near 1,000 deg. C.

Mr. J. M. Mamer: Just from the waste heat of the preceding chambers?

Mr. Rodgers: Yes, from the waste heat of the preceding chambers. This condition would only occur when the kiln is operated slowly. When you are working your kiln for all it is worth, and traveling as fast as your material will stand, you would not get any shrinkage before the gas is put on. But it runs from 850 to 900 deg. C.

Mr. P. A. Smith: Previous to adopting the continuous kiln you used the round down draft kiln?

Mr. Rodgers: Yes, sir.

Mr. P. A. Smith: I would like to ask regarding the heat regulation—whether or not it is easier to regulate to than it was in your round down draft kiln previously? the continuous kiln within the limits that you are confined

Mr. Rodgers: It is much easier. You have no chilling effect in the continuous kiln; you have no cleaning of fires; no opening of doors; we experimented with two or three recording instruments and the curves showed almost perfect on the heat line. To get a variation of heat a continuous kiln would have to be very sadly neglected because the gas is there, your valves are set and the air of combustion is coming through all these hot brick and you can't get any sudden changes of heat like you can in the ordinary kiln. We had a great deal of trouble in the old kilns to keep a fireman from burning up the top after cleaning. In the case of a continuous kiln you can get your heat going and the shrinkage starting and it goes regularly without any starting at all. Another thing in the continuous kiln—we have stopped our continuous kiln as long as three weeks and closed it up and at the end of that time started it right up again, taking a little time to get the heat back again, but the loss of heat has been slight. In the continuous kiln your machinery should be fully equal to the capacity of your kiln and your machinery should be reliable to keep up that capacity because the greatest efficiency is obtained in these kilns by operating them as fast as the material will stand it.

Mr. Walker: What is the comparison between your kiln and a round down-draft kiln in regard to fuel consumption?

Mr. Rodgers: As I said before, the fuel saving ranges from 50 per cent to 70 per cent, according to the condition of the old round down-draft kiln and the efficiency with which it is operated on. All these kilns vary in the amount of fuel that they consume, but I think that range of 50 per cent to 70 per cent will easily cover the saving over the old type of kilns.

Mr. P. A. Smith: Mr. Rodgers, in your opinion how much of that is due to better insulation? That is, generally speaking, the continuous kiln is better insulated?

Mr. Rodgers: Yes, sir; much better insulated, both the end walls and the crowns. Between the crowns is filled full of dirt and over the top of the crown there is two or three feet of dirt, and where they come together, they would run as much as five feet of dirt. When walking over a kiln that is well insulated in this way, in ordinary weather it would be hard to tell where the fire was. At the outside and at the end walls there is more radiation. This insulation has something to do with the economy but how much it is pretty hard to ascertain.

Mr. Reid: Do you think that the gas catches the full heat units?

Mr. Rodgers: That depends largely upon the location of your gas duct. Our gas duct is under ground—run alongside of the kiln. When the kiln is first started the ground is damp and there would be loss in radiation, but after the kiln is operated a few rounds and the entire ground becomes heated, with all this insulation the loss of heat in the gas is very slight. The building of the gas tunnel is another particular feature. It should be built much larger than the amount of gas that you want to put through in order to catch the accumulation of soot. When you first start a kiln and the ground is damp you have an accumulation of tar but after everything is working properly the tar almost entirely disappears. Our gas flue is about 5 ft. deep by 3½ ft. wide and we can run for six weeks without burning out. It has to be burned out occasionally, which takes five or six hours. We have a stack at one end with which we connect the gas flue, and by opening the end at the producer it ignites itself and gives a good draft and burns out very nicely and clean.

Mr. Reid: What size coal do you use?

Mr. Rodgers: You don't want your coal too coarse or too fine. We are using what is called a No. 3 washed nut in our country. It is a rather small coal. We have used with success a grade of coarse washed screenings but that is liable to vary. It doesn't vary in favor of the coarseness. You are liable to get a car occasionally that is composed of very fine stuff and that packs too closely to get your circulation. The best we have found is this No. 3 washed nut. The air doesn't rush through in holes and burn the gas in the producer; at the same time it is coarse enough to give ample circulation.

Mr. Reid: Do you know what screens that passes through in the Illnois district?

Mr. Rodgers: No, I do not.

Mr. Ogden: I would like to ask Mr. Rodgers about what the saving in labor is in using the continuous kiln rather than the periodical kiln?

Mr. Rodgers: A kiln that will turn out 70,000 common brick per day can be operated with two day men and two night. We have two producers on our kiln. You need one man to each producer and you need ample producer capacity because it is not economical to force these producers. If you do you get holes in the fire and the gas burns in the producer you lose the efficiency.

Mr. Powell: How deep do you carry the fire in the producer? What is the best level to carry it on to get the best results from the coal?

Mr. Rodgers: Do you know the distance from the grate bar to the stirring hole?

Mr. Powell: It should be carried on a level with the stirring hole?

Mr. Rodgers: Yes, if you are going to use a coal with some slack. But that has to be governed by the kind of coal that you are going to use. That can be easily ascertained by finding at what locality it holds its own best. If the fire is carried too deep it would make a cooler gas but it would make a little less gas. The producer would not be as productive of gas as if you carried it thinner and hotter, and I cannot say that the cooler gas is objectionable. You usually find that the cooler gas seems to be richer than the hot gas.

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## STRONG DEMAND FOR CRUSHERS.

Mr. Milton F. Williams, president of the Williams Patent Crusher & Pulverizer Co., of St. Louis, was one of the heartily welcomed guests at the convention in Louisville. Mr. Williams has been identified with the clay products industry for more than a quarter of a century and has a host of friends among the manufacturers of brick and tile. He has made a life study of the needs of this industry, so far as the preparation of material is concerned, and the Williams crushing and grinding machinery today represents the perfection of his ingenuity and mechanical ability along this line. Year by year, his business has grown with the trade and today occupies the best equipped manufacturing plant of its kind in the country. It appears, however, that notwithstanding increased facilities, the increasing demand for Williams crushing machinery keeps pace and today the company is crowded with orders from all over the country. The present condition indicates a prosperous year and also indicates the progressiveness of the clay products manufacturer, in equipping their plants in an up-to-date manner.

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### FROM THE PACIFIC COAST.

San Francisco, Cal., Feb. 6.—Building work in all the Coast states is greatly hampered at present by a heavy rainfall, which has continued for about two weeks, causing an entire suspension of sewer construction and preventing any material progress on buildings under way. The output of brick, however, continues on about the same scale as before, as practically all the plants around San Francisco, which have been in active operation for the last few years, are so equipped as to be independent of weather conditions. Notwithstanding the delay in building, the rain is very gratifying to brick manufacturers, as at the close of the year, dry weather through the country was beginning to cause some uneasiness in regard to the outlook for next summer. Now it is felt that crops are well assured, and that building in the country towns will proceed on an even larger scale than last year.

Conditions in San Francisco are a little better than they were, the December building record being the best in several months, and while the January report is likely to show a little falling off, it is believed that the worst period has been passed. The future is assured, if the decision on the Panama-Pacific Exposition is favorable to San Francisco, quite a number of prospective jobs being held up pending the decision; but regardless of the exposition, there is a better feeling than for many months past.

The common brick situation is gradually improving, prices in the local trade being more firmly held than at any time last year, though so far there has not been much actual advance. The current output of local plants is kept pretty well sold up, and within the last month quite a number of bricklaying contractors have placed advance orders with manufacturers, assuring a ready market for their product until late in the spring. The only danger is in the possibility that the improvement in the market will attract large quantities of brick to San Francisco from interior points. No further shipments of any consequence have been made to distant points, but there is some inquiry for shipment, and another cargo will probably be sent out this month.

A change of some importance has taken place in the affairs of the Vallejo Brick & Tile Company, Consolidated, the management of which has been changed several times within the last two years. Samuel Hubbard, Jr., gave up the position of general manager the first of the year, and C. Hidecker, head of the Ione Fire Brick Company, has been chosen to fill the vacancy. The office has been moved from the Mills building to the Monadnock building. W. W. Dennis, of the McNear Brick Agency, has moved his quarters from the yard on the water front to the same office, and in addition to the McNear business will act as salesman for both the Vallejo paving and sewer brick and the Ione fire brick. Mr. Dennis has handled the Ione product in the past, when he was associated with the Holmes Lime Company, formerly agents for this article. He is well known on the Builders' Exchange, and should make a good showing with all the lines now handled. In regard to the export business, Mr. Dennis reports a large order from parties on the coast of British Columbia, and is making arrangements for another cargo.

The 35th annual banquet of the Masons' and Builders' Association of San Francisco was held in the ballroom of the Palace Hotel on the evening of Jan. 7, and was one of the happiest gatherings in the history of the organization. The interest of the event was increased by the presence of the ladies, this being the second banquet of the association to which they were invited. A musical program took the place of the usual speeches. The only speaker was S. H. Kent, president of the Builders' Exchange. The officers of the association are: J. J. Phillips, president; E. J. Brandon and Walter Reed, vice presidents; W. S. Scott, secretary, and T. W. Butcher, treasurer. Mr. Phillips acted as toastmaster.

The Golden Gate Tile Company, With G. F. and H. N. Gray as managers, has opened an office at its plant at Powell and Bay streets.

Bids are being taken on three large brick barrack buildings for the Presidio.

New business in terra cotta and pressed brick is rather dull at the moment, though a few fairly good contracts have been placed, and architects are working on a large number of plans for buildings in which these materials will be extensively used. Several good jobs are expected during the spring on public buildings, including post offices, court houses, schools and churches. Terra cotta will be used for the trim of the new Mount St. Joseph orphan asylum, a large three-story structure, the greater part of which will be of plain red brick.

One of the principal jobs let this month is the Sacramento county court house, the supervisors having decided on pressed brick and terra cotta in preference to granite for the upper stories. The contract has been taken by N. Clark & Sons. This firm has also taken a large contract for polychrome work on the First Church of Christ, Scientist, in this city. They are finishing up a lot of sewer jobs, and have several new ones in sight.

A few new sewer jobs have come out in San Francisco, but little progress is being made with the work in hand, partly on account of the weather and partly owing to the failure of a contractor who was working on several of the largest sections.

The United Materials Company, agent for the Los Angeles Pressed Brick Company, is showing samples of a new line of face brick, in two light shades, from the Los Angeles concern's kilns at Richmond, Cal. Preparations are being made for a number of improvements at this plant in the next few months, as its products are gaining a strong hold in the local market. This company is one of the oldest concerns in the state, having been established in Los Angeles for 33 years, though the Richmond plant is only a few years old. The main office is in the Frost building, Second and Broadway, Los Angeles. The plants in southern California turn out a great variety of products, including pavers, an impervious red brick, building, roof and floor tile, and faience tile. The latter material is being furnished for the new Utah Hotel at Salt Lake City.

Another prominent Los Angeles concern is the Simons Brick Company, with offices in the Stimson building. The Simons family has been in the brick business over 40 years, starting in Los Angeles in 1886, when the rapid development of that city commenced. The company was organized in 1890, and incorporated in 1900, the present officers being: Joseph Simons, president; E. O. Simons, secretary-treasurer, and W. R. Simons, vice president. The company has five large factories in southern California, employing over 450 men regularly, and is one of the largest industries of the kind west of St. Louis, the output including all varieties of clay products.

The Port Costa Brick Works, which has been closed down for the last few weeks, is to be reopened about the last of February, according to present plans. A lot of new equipment is being installed with a view to a more diversified output, though the company has considerable business in sight in the common brick line.

A large cargo of brick was shipped from Seattle, Wash., recently, for the construction of a sugar mill in the Philippine Islands.

The installation of preliminary equipment at the plant of the Oakland Paving Brick Company near Decoto, Cal., is about complete, and it is reported that the company will start work on its first brick about March 1, using the material for the construction of additional kilns and buildings. A drier is to be erected on each side of the machinery building.

F. Gillett and N. St. Onge are working on a brick kiln project at Sutherlin, Ore.

W. S. Brown and W. Robertson, of Vancouver, B. C., are making arrangements for the establishment of a tile factory at Anacortes, Wash.

The Sacramento Sandstone Brick Company is just completing its sand-lime brick plant near Sacramento, Cal., at the confluence of the American and Sacramento rivers, and is now turning out about 15,000 brick daily. The first material turned out is being used for buildings at the plant, but R. M. Philpot, the manager, is confident that the later output will be readily taken up by the Sacramento market. The selling end will be handled by Mr. Philpot and G. W. Bostwick.

Mr. Howard Frost, of the Los Angeles Pressed Brick Company, has the following to say in regard to conditions: "The outlook for Los Angeles and southern California was never any better than at the present time. For the year 1910 approximately $22,000,000 was expended in buildings within the city of Los Angeles. This remarkable record shows every evidence of continuing for this year. Los Angeles is now maintaining fourth place in the list of cities whose building operations are the heaviest. It is now surpassed in this respect by only New York, Philadelphia and Chicago. Trade conditions throughout the entire Pacific Coast are most satisfactory."

Indications point to a successful year during 1911 in the clay industry along the Pacific Coast. Building outlook is most favorable.

In an interview concerning the outlook for the season, Thomas Vigus, general sales manager for the Western Art Tile Co., of this city, not only declared that the business of the concern of the last few months had been good, but added that the future months would show a still further increase. Continuing, Mr. Vigus said:

"We are a little young yet, but I take an enthusiastic view of the situation.

"We have $1,000,000 invested in our plant at Tropico. Of our twelve acres of ground four are given to buildings.

"You may be surprised to know that we are the only firm west of Indianapolis to manufacture art tile. We supply a good deal of northern and western trade, and of late have been shipping up to Portland and Seattle.

"I think there are unlimited opportunities in this section of the country for industrial expansion. That is the reason of our locating.

"We have clay beds at Tropico, Death Valley, Elsinore and elsewhere. Our finish is up to the best. Recently we supplied the Navy Yard with enamel brick. The shipment was in every way up to Government standard.

"At present we employ 150 men. Our estimate for coming year's business is between $500,000 and $1,000,000. The plant will turn out 30,000 enamel brick per day in addition to heavy tile output.

"Money is getting much easier. In fact, for legitimate manufacturing enterprises, if a person has good security, he can get what he needs.

"A high grade mat brick is meeting with success. Wainscoting, bath-tub enamel and ornamental tiling are some of our specialized output.

"The general building outlook seems favorable to us and we are planning our business accordingly."

## COLORADO NEWS.

Denver, Colo., Feb. 1.—With the exception of enamel brick, every kind of brick known to commerce is produced in Colorado. Practically every shade and every variety of any importance can be found here, including the popular "tapestry" brick. The color range varies from light gray to dark red, chocolate and almost black.

The strength of some Colorado brick is remarkable. The United States Government has purchased 6,000,000 shale brick made in Colorado for the foundation and backing work of the new Denver postoffice. They were subjected to the most exhaustive tests, covering a period of two months, before the order was placed.

Besides nearly forty brick-making plants in and around Denver, there are brick works at Golden, Boulder, Longmont, Greeley, Fort Collins, Canon City, Pueblo, Colorado Springs, Trinidad, La Junta, Montrose, Delta, Grand Junction, and doubtless at other places also.

The year 1910 in the brick business of Denver and vicinity was just about the same as 1909. More could not be said, for the building activity of Denver during the past two years has been a wonder. More common brick were made here in 1910 than the year before and rather less face brick. The reason for the change is that residences require a far larger proportion of pressed or other face brick than do office buildings. The heavy building in Denver during 1909 was in residences; in 1910 the heavy building was in office buildings. The result shows in the changed proportions given.

All told between 100,000,000 and 110,000,000 brick were burned in 1910 in Denver and the immediate neighborhood. Of these, about 75,000,000 or 78,000,000 were common brick of various sorts; the rest are face brick and fire brick. The total value of the brick output of the city is well above $1,000,000.

Denver brick were used for the facing of the First National Bank building, for the Daniels & Fisher tower, for the Metropolitan building, St. John's cathedral, and many other large buildings. It was planned to make the D. & F. tower of imported brick, but a local firm won the contract by duplicating the brick of an eastern firm which was supposed to have the exclusive knack of getting the required results.

I have been unable to get reliable figures as to the output of Colorado firms outside of Denver. It can hardly be less, and is probably quite a bit greater, than that of this city. Some of the outside plants are very large and have worked full time all the past year.

Colorado manufactures a large quantity of hollow tile and of sewer pipe and field drain pipe. The year in this part of the clay industry shows a considerable increase over last year. There are two manufactories of common pottery and sanitary materials.

No list of the clay products of the state would be complete which failed to mention the famous art pottery of Colorado Springs. The output of this establishment is shipped to all parts of the country.

The Thomas Normile Brick & Pottery Company of Golden, Col., will build a plant in Denver, according to information received by the Chamber of Commerce. The corporation owns extensive clay beds near Golden, and will organize a $25,000 company and plans an output of 3,000 brick a day.

It is said that in the near future Rocky Ford, Col., will have a brick plant that will turn out brick at a rapid rate. A clay deposit has been discovered just north of the river of unlimited quantity and of a quality that will make pressed brick even superior to the Golden brick. Pueblo men are now making arrangements to work the deposit and a plant probably will be installed soon.

The Chamber of Commerce brought experts there in September from the state agricultural college. These experts tested samples from all of the clay beds around the city and the results were very satisfactory. Clay was sent to a factory in Chicago and the Chamber of Commerce now has several brick made from it. They are so hard they will cut glass and ring like steel. They are of a light golden color.

Mr. Bonnott is enthusiastic over the prospects and as soon as arrangements can be made will probably start a brick-making plant.

Mr. N. H. Partridge, general manager of the Colorado Brick Supply Company, Denver, says that brick and general builders' supply business has been good in Colorado for the past year, and that the general outlook is very favorable.

F. L. Tettemer, general manager of the Denver Shale Brick Co., says: "The general impression prevails that this will be a light year for building in Colorado, owing to the unusually excessive construction work that has prevailed here steadily since the financial flurry of 1907. The argument is advanced, and not without merit, that conditions must equalize over a given period of time, and that the natural result of the extensive building operations throughout Colorado in general and particularly in Denver, during the past three years, will cause a decided falling off during the current year.

We are compelled to admit the force of these arguments; at the same time we are optimistic by nature, and considering the remarkable growth of our state in the past decade, the healthy financial condition of our institutions and the general prosperous condition of our people in all classes, we are inclined to the opinion that building operations will be heavier this season than is anticipated now, even admitting that they will be somewhat less than we have had for the last two years."

This company has the contract to furnish the new U. S. Government postoffice building here, six million hard shale brick. The work is now progressing rapidly. The foundations, built exclusively of brick, are nearly in, and work on the superstructure will proceed without delay. The building will be faced with Colorado Yule marble.

## FROM THE LONE STAR STATE.

Austin, Texas, February 3.—Brick manufacturers over the state are well pleased with the trade situation. Building activity in the different cities and towns show no signs of a falling off and it is expected by contractors, who are in close touch with the different projects that are under consideration, that there will be a continuation of the present era of new construction during the spring and summer months. Many large buildings are being planned in the different cities and towns of the state to be started during the present year. The demand for pavers also shows a gratifying increase.

Messrs. Ball and Hardin will increase the capacity of their tile manufacturing plant at Plainview, Texas, to about 40,000 feet daily. The plant now has a capacity of 6,000 feet daily.

W. H. Randolph and Fred Smith have just finished the erection of a new brick-making plant at Huntsville, Texas. A series of tests which were given the bed of clay from which the material for the brick will be obtained gave splendid results.

A bill is pending in the state legislature providing for the creating of the office of state inspector of masonry. The necessity for such an official was pointed out to the house committee on state affairs by W. J. Moran, of Ft. Worth, secretary of the Bricklayers' and Masons' Union.

The Terra Cotta Tile and Pressed Brick Co. has been organized at Houston with a capital stock of $75,000 for the purpose of manufacturing brick and tile near that city. The brick plant will have a daily capacity of $100,000. The incorporators of the company are George Gwilt, of Houston; Milton McConnell, of Dallas, and Clement Watson, of New Waverly, Texas. The company has purchased 200 acres of yellow marl and fire-clay land near Houston. The yellow marl stratum is 70 to 80 feet thick and the fire-clay is about 40 feet thick. Both are near the surface.

The enlarged plant of the Wichita Falls Brick and Tile Co. at Wichita Falls has a daily capacity of 180,000 brick. The machinery and other improvements to the plant cost $100,000.

The Seco Dry Pressed Brick Co., of D'Hanis, Texs, which was recently organized with a capital stock of $40,000, expects to have its new plant ready for operation by March 1. It will manufacture brick, tile and other clay products. F. Rothe is president and E. R. Lineweber vice-president. The directors are Louis Rothe, August Rothe, Joe Ney, Peter Koch, Jr., and Ed Demontel.

The city council of Amarillo, Texas, has let the contract for the paving of two miles of streets with vitrified brick at a cost of $200,000.

The latest industry to be established at Brownsville, Texas, the Brick and Tile Manufacturing Co., is now in full operation. The first kiln was an undoubted success and contained 55,000 cream-colored fire brick of unusual hardness and smoothness, the product of the Cameron brown clay, said by a government geologist to be one of the best brick clays in the country.

The complete plant will comprise six kilns of an average capacity of 50,000 brick, and a brick press with a capacity of 20,000 brick a day. Three of the kilns are now in use and the other three are in course of construction.

The new plant, which is under the management of C. A. Winstedt, represents an investment of $50,000, which was furnished by local capitalists.

The Wichita Falls (Texas) Brick & Tile Co. has commenced operations at its new plant, which cost nearly $100,000, and will employ 100 men. The company's output has been 60,000 brick daily for the last two years, but the new plant will treble this output.

As a result of the assurance of cheap rates on fuel the Claremore (Okla.) Commercial Club is pushing the factory interests there. A deal was made recently for forty acres of land, two miles below the town, where the proper clay is located for making buff brick. The clay has been tested and burned into a fine article. The Girard Brick Co., of Girard, Kan., is going to locate there, and the Commercial Club expects to lease the land to that company.

Ground has been broken and the machinery has arrived for the new plant of the Garrison (Tex.) Pressed Brick Co., this firm having just recently been organized. The company expects to have its plant in operation within 60 days.

A contract has been closed with the Sherman Brady Brick Co., of Houston, Tex., for 1,000,000 brick for the Southern Pacific nine-story office building. Orders for 4,500,000 brick for local use have been placed with the concern recently. A feature of the brick manufacturing industry in Houston is the fact that the company is absolutely dependent upon the Houston ship channel for its raw material, and upon this fact is hinged the secret of the Sherman Brady Brick Co. in underbidding their out-of-town competitors. The clay is procured from an island down the channel and is shipped directly up the channel on barges to the company's plant.

The Memphis (Tex.) Pressed Brick Co. has been organized with a capital stock of $50,000. The incorporators are J. S. Cobb, J. W. Massey and J. W. Greenwood.

It is said that a 20-foot bed of fine brick shale can be had four miles west of Tucumcari, N. Mex., and that two specimens in particular of finished brick, a white and red pressed brick, showed excellent qualities when put to a test before investors in the east. A company in San Francisco has offered to finance a company and it is said that a $10,000 plant will be put in if their offer proves acceptable. It is hoped that brick may be put on the Tucumcari market at little more than $12 a thousand.

A plant for the manufacture of tile for sub-irrigation of the native soil will be placed in Plainview, Tex., soon, and a ten acre test farm will be put in operation for this year's crop. The land for the test farm is located one mile northeast of the city. C. R. Ball will be manager of the factory, which already has orders for a quarter million feet of tile. The output of the plant at present will be 6,000 ft. per day, but it is the intention of Messrs. Ball and Hardin to replace this machinery during the present year with machinery that will have a capacity of from 30,000 to 40,000 ft. a day.

## ST. LOUIS GOSSIP.

St. Louis, Mo., Feb. 11.—There is a quietness prevailing in the clay working industries at the present time. The majority of the brick and fire clay plants which shut down during the holiday season and continued idle during the greater part of January, and while closed down took advantage of their idleness to make necessary repairs and improvements, are beginning to resume operations, but on a small scale. As soon as the weather becomes pleasant they will work to their fullest capacity.

Building operations in St. Louis, according to the report of the building commissioner, while showing a slight decrease from the operations for January, 1910, made a healthy increase over the corresponding month in 1909, the operations also being larger than in December, 1910.

The decrease from January, 1910, is accounted for by a permit having been issued during that month for a $300,000 building.

During January several permits were taken out for large buildings, among them being several for new manufacturing establishments and large additions to old plants. The activity in building small stores was particularly noticeable. Forty-four permits were taken out for this class of building.

The total operations for the month were $1,356,655, against $1,461,000 for January, 1910, and $1,124,219 for January, 1909. The total operations for December, 1910, were $836,879.

In the classified statement of structures it was shown that only one dwelling to cost more than $15,000 was undertaken. Permits were taken out for seventy-eight brick dwellings to cost less than $20,000, the aggregate cost of which amounted to $293,483.

The dropping off in moving picture show house construction was noticeable, only three permits being issued. These three places will cost an aggregate of $25,450.

A decrease in apartment house construction also was manifest. Permits were taken out for one to cost $22,000, and forty to cost in the aggregate $192,440.

The largest mercantile structure for which a permit was issued was an eight story building to cost $144,000.

The St. Louis smoke inspector says that many of the brick manufacturers now operationg within the city limits will be obliged to move to the country unless some method of abating the smoke from the plants could be invented.

He added that a device was being installed at one of the brick yards which promised to abate the nuisance, but said there was some doubt as to its efficiency.

"I have heard from several brick manufacturers that they intend to move beyond the city limits," said the smoke inspector. "I have been after them to comply with the law, and they claim it is impossible to abate the smoke from a brick kiln. If this device which is now being installed proves to be a success I will lose no time with them, and, to give them their due, they are willing to install it."

W. L. Rodgers, secretary of the Fernholtz Brick Machinery Co., says that while this is the quiet season of the year for brick machinery, nevertheless indications presage an excellent volume of business next spring. Inquiry has developed to quite an extent, and is increasing. He thinks that by the last of February the brick machinery business will show a very considerable amount of life.

Many street improvements will soon be started over in East St. Louis. One of the many will be the improvement of a street, which will be laid with brick, to cost in the neighborhood of $50,000.

Miss Nell Ittner, daughter of Mr. Anthony Ittner, president of the Anthony Ittner Brick Co., was recently married at the home of her parents on Park Avenue, St. Louis, to Mr. Max Hulett, of Detroit, Mich.

Fire clay products, such as sewer pipe, fire brick, red brick and terra cotta made a big showing in St. Louis during the past year. According to reports, there was a gain of from five to ten per cent in the aggregate during the year and the volume of business alone amounted to about $5,000,000. This big showing is accounted for because of the vast amount of raw material of all kinds for such use which underlies the St. Louis district. It is estimated that within a ten mile radius, more clay products are turned out than in any like area in the United States.

At the annual election of the Evans & Howard Fire Brick Co. held recently, Edward Flad was elected a director in the company to succeed Isaac H. Orr. The other directors are Cecil D. Gregg, President Warren L. Clark, Andrew Sproule and Frederick Varling. George W. Jones was re-elected secretary and treasurer.

## THE CHICAGO SITUATION.

Chicago, Jan. 9.—While the Windy City is temporarily snowbound, it has not had any material effect in holding back business for brick and clay commodities. Naturally it has had the effect of temporarily holding up a few plants and some deliveries for a short time, but not enough to make any noticeable difference. The business prospects continue to be flattering, and there is a good prospect for a most notable business year.

The decision of the city council to amend the law covering the height of buildings in the downtown district to 200 ft. has not been received with any great alarm. It has been argued that the matter will never be put into effect, as it is a discrimination against the downtown property owners in favor of those owning property outside the loop. According to the law it will go into effect on the first of next September, and any building that has not been started by that time will not be permitted to rise above 200 ft., or about twelve stories. There has been much opposition displayed by a large number of people ever since the matter was first brought up for discussion, and there is every reason for the belief that the fight in this respect is not over.

The Supreme Court has made a final ruling on the matter of keeping the lake front free of buildings, and the Field Museum and the Crerar Library, both of which were to have been erected in or near Grant park on the lake front, will now have to be builded elsewhere. The Field Museum, which is now located in Jackson Park, in the old World's Fair art building, will in all probability remain there, though a new building will be erected costing many thousands of dollars. It has not been decided just where the Crerar Library will be erected, though is has been hinted that a skyscraper will be put up in the downtown district.

According to reports from a number of sections the prospects for building and the demand for clay products is very gratifying, and the year will in many respects surpass that of the past twelve months. A number of the brick plants and other clay workers are still at it, and will soon increase their output. If the weather holds up well there will be a decided increase in the next thirty days.

The annual report of the Illinois Brick Co., which was made public at a meeting of the stockholders, on February 6, by President Schlake, shows a very gratifying condition of affairs. The old directors were re-elected with the exception of Walter S. Dickey, of Kansas City, and L. M. Harland, of Chicago, who succeeded the late J. M. Gary and J. E. French respectively. The report says in part:

"The earnings for the year ending December 31, 1910, amount to $574,794.14—a sum equivalent to 13 per cent of the outstanding capital stock of the company. The earnings were distributed as follows: Paid in dividends on outstanding capital stock (8 per cent), $346,200; transferred to reserve for depreciation account, $181,099.26; added to surplus account, $47,494.88; total $574,794.14.

"In addition to this amount of earnings, there was expended the sum of $72,692.03 for maintenance and repairs.

"A considerable increase is noted in the buildings and machinery account. This increase is attributable to three causes: The purchase of additional brickmaking properties. The cost of equipping yards to adapt them for the installation of the patent brick-setting device, and the merging of the purchase and construction account into the buildings and machinery account.

"The wisdom of the purchase of the brick plants above named has been fully shown by earnings, and these plants will continue to prove a profitable investment for the company.

"At the last annual meeting the company authorized an increase of one million dollars in the capital stock. Of this amount $400,000 has been issued at par. The remaining $600,000 of stock is still in the treasury of the company, and appears in the statement submitted herewith as unissued stock.

"The stock of brick on hand December 31, 1910, is 36,000,000 less than at the close of the same period a year ago. The figures are as follows: On hand December 31, 1909, 119,000,000; on hand December 31, 1910, 83,000,000.

"Considerable space in the report of a year ago was devoted to the Penfield brick-setting device which this company had contracted to install in its yards. I can now give you my personal assurance that the device has proven an unqualified success, and fully justifies the large amount of money expended in its installation. The prediction made that this machine would facilitate operation and produce a better quality of brick has been verified. It has been in operation on four of our plants during the summer and fall months. A fifth plant was started shortly before the inclement winter weather compelled a cessation of operation. With the opening of the brickmaking season of 1911 eight plants will be ready to use the machine.

"The officers of the company have carried out the policy which has always been observed of keeping all the plants in thorough repair, and in the opinion of your president, which is also shared by the members of the board, they are now in better physical condition than at any time in the history of the company.

"The work of carrying on the business of the company of manufacturing and disposing of its product, together with the additional labor during the last year involved in the re-construction of the plants, made necessary by the installation of new machinery, was exceedingly onerous.

"There has been hearty co-operation on the part of those interested in the work of the company, and at the present time the company has the advantage of the undivided support of its officers, directors and employes."

The Carey Brick Co. are finding the situation with regard to the demand for building brick very good. Within a month they expect to be very active again, as the indications point to a year of great business for the clay operators.

The Allis Brick Co. continue to make fair progress, and are satisfied with the way business is holding up. They are not able to operate to their full capacity as yet, but within a month or more of work at their large plant they will be in a position to run full. The outlook is gratifying to them.

The Chicago Retort and Fire Brick Co. are rushed with orders. Last month they were unable to meet the demand for their products, and are now sold ahead, though they are operating to capacity. They feel very much gratified on account of the demand continuing and they are looking forward to a continuation of the same conditions that have obtained in the past month or so.

The North Western Terra Cotta Co., while very busy, are making some progress toward rebuilding the portion of the plant that was burned in the recent fire. While it will be several months before this is complete it will not interfere with their plans as they are going ahead with the work as usual. The demand continues strong for their products.

The Marion Brick Co. are operating their plant at Montezuma, Ind., and are looking forward to a very fair demand for pavers this spring. The past year was not as gratifying as it might have been, but the indications now look favorable for the coming months and they hope for a nice business.

The Garden City Sand Co. say that there has been a very fair call for their products. They feel sure that the coming months will give them ample to do in the way of business.

The S. S. Kimbell Brick Co. find the present demand for face brick to be a trifle quiet. The aspect of the building situation is, however, of such a nature that there will doubtless be a good brisk demand with the opening up of the spring. Mr. Matz, of this company, and several others of the face brick men, attended the Louisville convention.

The Hydraulic Press Brick Co. are not rushed, but are still of the opinion that the time is not far distant when the increase in the demand for face brick will be very brisk. They are anticipating an early and a large demand.

## PENNSYLVANIA PENCILINGS.

Philadelphia, Pa., Feb. 6.—Despite severe weather handicaps, trade reports reflect steady progress toward betterment. Transportation and construction suffered temporarily from blizzards and snow storms, but manufacturing and distribution maintained fair activity, and the business outlook continues to brighten under rising demands for building material.

Charles M. Taylor's Sons, who operate a number of trans-Atlantic steamship lines, have contracted during the present year to bring to this port approximately 100,000 tons of china clay from Fowey, in vessels of the Furness Line. The Furness Line is operated exclusively in the transportation of China clay from Fowey to Philadelphia. The potteries in the vicinity of Trenton as well as large potteries in the Middle West are supplied through this port. From two steamships a year the Furness Line has grown until now the service requires 26 steamships a year to handle this product.

Fire of unknown origin destroyed the buildings and machinery in the yards of the Philadelphia Brick Co., 23rd St. and Passyunk Ave. The loss was about $25,000, partially covered by insurance. The buildings destroyed comprised the drying building, the machine house and the boiler house. The blaze started in the drying building.

The Queen's Run Fire Brick Works, after having been shut down for some time to make necessary repairs, have resumed operations.

Stockholders of the Montello Brick Co., at Reading, elected the following directors: Lambert A. Rehr, A. J. Brumbach, J. G. Mohn, J. B. Fricker, Nathaniel Ferguson, W. W. Light and Howard L. Boas. The authorization of the mortgage indebtedness of $500,000 with which to put the several plants in operation has been certified to with the secretary of the commonwealth. Holders of outstanding stock to the amount of 98 per cent. approved the plan, and the assent of only a few more is necessary in order to make the plan effective.

The outlook for the brick industry at Bolivar is considered very bright. It is predicted that during this year there will be at least twice as many brick made at No. 4 plant as were made last year and it is hoped by the company that it may be able to exceed even that mark. At the plant of the newly-organized Phoenix Fire Brick Co. weather conditions have interfered greatly with getting the mines, quarry and tracks ready to supply the raw material. Much work has been done at King's mine and it is possible that within a few days this operation will be in shape to supply flint, clay and coal. Some preliminary work has been done at the soft clay mine and more extensive work along this line will be started within a few days. No. 1 brick works will start operations as soon as the weather permits. Such repairs as are necessary for the operation of this yard have been made. It has not yet been decided whether No. 1 or No. 4 will be put in operation first, but it is known that they will both be busy before the end of the season.

At the annual meeting of the directors of the Mill Hall Brick Works, at Lock Haven, the following officers were elected: President, J. Frank Torbert; vice-president, K. D. Smith; secretary and treasurer, A. C. Tevling; superintendent, Ira H. Smith; directors, J. Frank Torbert, K. D. Smith, Robert H. Furst, John C. Clark, Elmer Tevling. The affairs of the company have been most satisfactorily taken care of and the quality of their brick is of such a high order that they find a ready sale, the plant is kept in continuous operation and is one of the top notch industries of that place.

At a meeting of the stockholders of the Nanticoke Brick Co. the following list of directors were elected for the ensuing year: Paul Barrall, Joseph Evans, Jr., Joseph Payne, L. S. Oplinger, M. H. Fine, Thomas Turner and A. D. Smith.

Seth L. Scholl, one of the oldest residents of Lansdale, died recently at the age of 69 years. At the age of 11 years he commenced work in a brickyard, and assisted in making the first brick used in Lansdale.

Orders at the Patton Clay Manufacturing Co.'s plant at Johnstown are increasing, and the prospects are good for a big business this spring and summer.

Excavation work for the new Ellwood City Brick Co.'s plant, to cost in the neighborhood of $15,000, has been started and will be rushed with all possible speed. It is the intention of the company to be making brick by April 1. The brick will be made by a process which will prevent warping. Several kilns will be erected and the mixing house will be the most modern of any brick works in this part of the country. Ellwood capitalists are back of the project.

The Reading Tile and Mantel Co. have the contract to tile the new hotel at Schlemville.

The Schuylkill Pressed Brick Co., Podsville, are making a dry pressed brick of shale.

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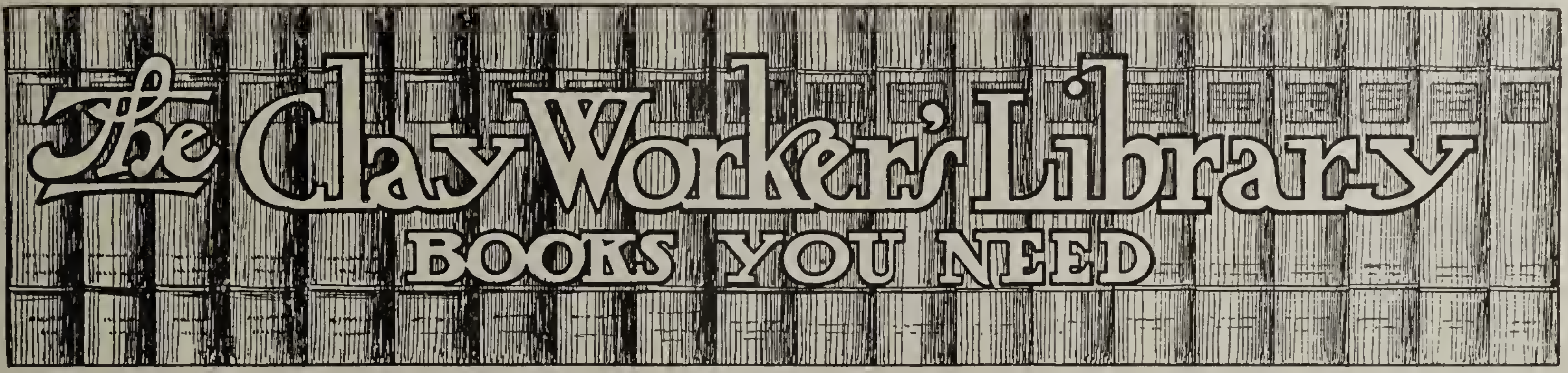

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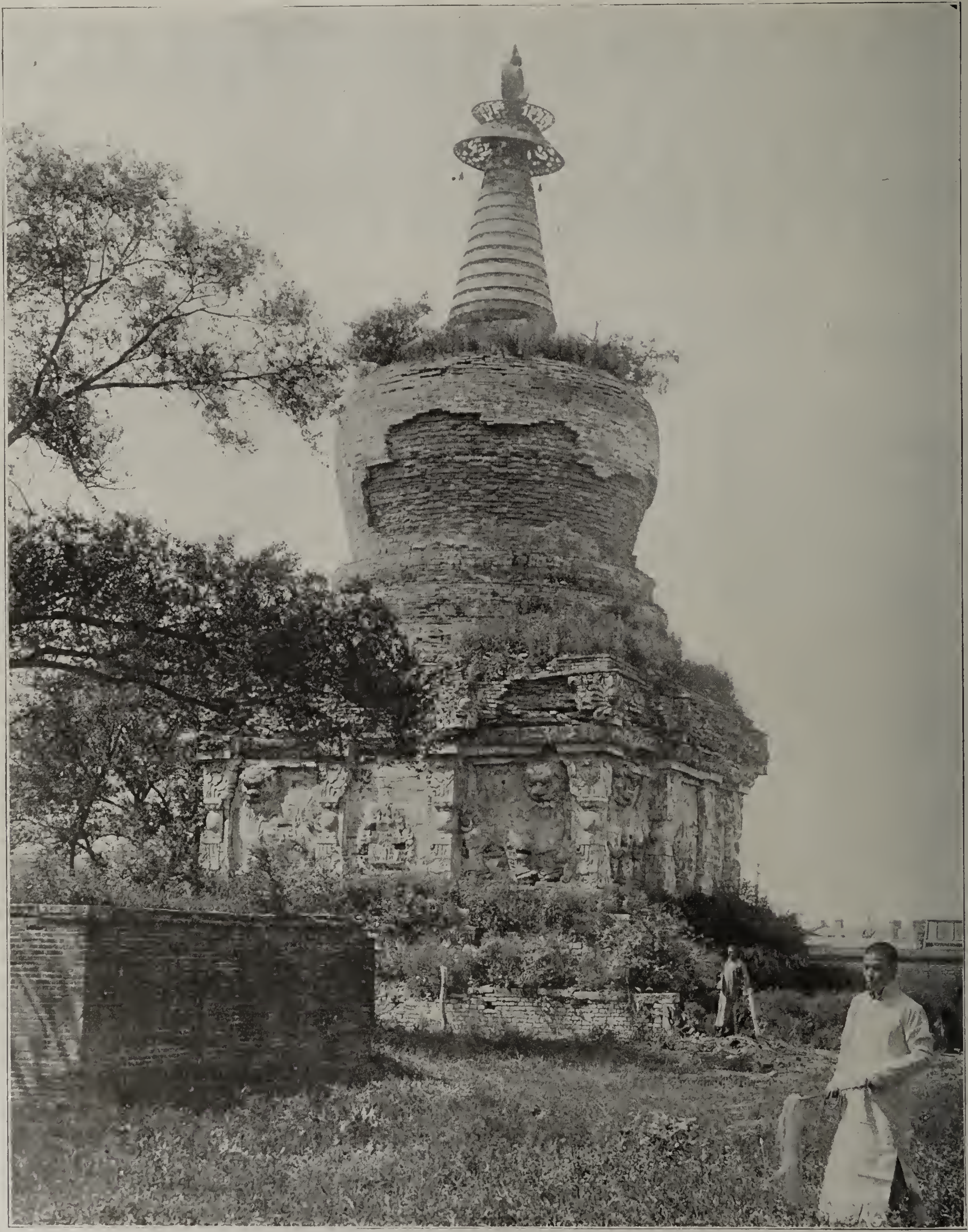

TEN CENTURIES OLD

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VOL. XXXVIII—NO. 5
BRICK AND CLAY RECORD
MARCH 1, 1911

# TECHNICAL MEN CONVENE

## Thirteenth Annual Meeting of the American Ceramic Society Held at Trenton, N. J., Votes to Meet in Chicago in 1912

Ninety-seven men gathered in what certainly was the most enthusiastic and profitable convention yet held by the American Ceramic Society. If there has ever been any hoodoo in the number 13 something intervened to offset the evil effects, for this the 13th meeting of the society was in every way a success.

While every delegate was enthusiastic over the results shown, all but a very few regretted the fact that it had not been found expedient for the A. C. S. and the N. B. M. A. to convene during the same week and in the same city. In fact, a vote was taken at the instance of the Board of Trustees that if it is ever at all possible the two organizations would meet during the same week and in the same city at least every other year.

Prominent Members of the American Ceramic Society—Reading from Left to Right: Ellis Lovejoy, Treasurer; Prof. Edward Orton, Jr., Secretary; Prof. Ross C. Purdy, ex-President; Henreich Ries, Retiring President.

By vote it was decided the society is to meet in Chicago at the time of the Clay Products Show next January, the same as was voted by all of the other National organizations.

The following officers were elected by letter ballot:

President, Charles Weelans, Trenton, N. J.

Vice-president, Lawerence E. Barringer, Schenectady, N. Y.

Secretary, Edward Orton, Jr., Columbus, O.

Treasurer, Ellis Lovejoy, Columbus, O.

The vacancy on the Board of Trustees caused by the death of H. F. Ashley was filled by Ernest Mayer, of New Brighton, Pa. The present Board of Trustees consists of Messrs. Mayer, Cannon, Fiske and the four newly elected officers.

The following were elected to full membership by letter ballot:

Geo. H. Brown, Pittsburg, Pa.
R. Guy Cowan, Cleveland, O.
Dwight T. Farnham, Renton, Wash.
Frederic Gelstharp, Charleroi, Pa.
Robert F. Grady, St. Louis, Mo.
John H. Knote, Pittsburg, Pa.
Arthur E. Mayer, New Brighton, Pa.
Joseph B. Shaw, West Lafayette, O.
Felix Gustav Singer, Bunzlau, Germany.
Homer F. Staley, Columbus, O.
Wolsey G. Worcester, Detroit, Mich.

There were so many papers of special interest that not much more than one-half of those on the program could be heard. The discussions were in most cases animated, and participated in by an unusual number.

One of the most significant results was the interest taken by the local practical potters, who, in many cases, attended the meetings out of curiosity. They not only took active part in the discussions but have modified their views concerning the so-called "theorists." They found our university people able to discuss scientific problems in practical workshop terms, making the program one that was of interest to all.

The society met in two sections, both sections holding meetings simultaneously. Even with this, two more days would have been required to have completed the program.

Secretary Orton reported that the society was holding its own financially, as well as in interest and enthusiasm. Over forty members were received during the year, making the total membership a little over four hundred. The expenses of the society naturally have grown with this increase in membership. As each year adds a volume to their list of publications, more and more clerical work devolves upon the secretary, making the running of the society a matter of no little expense. With it all, however, the society found a balance without having to increase the now nominal membership fee of $4.

### Changes in By-Laws.

A very elaborate revision of the rules of the society was made this year, which takes effect at this time. Provision was made for four classes of members, namely: honorary, active, associate and contributing. The fourth class consists of persons, firms or corporations engaged in ceramics or on allied work, who being interested in the society, make such financial contributions for its support annually, the Board of Trustees fixing the amount of annual dues, which shall not exceed $25.00. The privileges of this membership begin with the payment of the annual dues and cease at the end of the fiscal year of the society.

The new rules prescribe a method of promoting associate members to active members and puts the power of electing associate members in the hands of the board, so that new associate members can come in at any time during the year without formal vote.

The limits of the dues in various classes were raised, but no change in amount made at this time; the change in amount of dues will be made at the discretion of the board. The dues for active, associate and contributing members cannot be raised above $10.00, $5.00 and $25.00, respectively. The present dues are: Active members $5.00 and associate $4.00. No change was made relative to number of officers, mode of election or method of conducting the meetings except that an annual midsummer meeting committee for arranging summer meetings is to be appointed every year by the president.

The financial statement showed total receipts of $3,547, an increase of income of $700 over the previous year, and expenditures in proportion. The balance in the treasury being $250. The sale of literature during the year netted the society $400 more than in previous year. The total number of volumes of all the transactions published now on hand number 2,710 and are valued at $6,000.

The membership numbered 340 in February, 1910. There were 57 accessions during the year and 16 lapses, leaving the total membership on the first of the present month 381. Since that time there was 40 new members admitted, making a total membership of 421.

### The Bureau of Mines.

In the report of the Board of Trustees the following interesting information was given relative to the Bureau of Mines: The political work by the American Ceramic Society for some years past in behalf of the creation of a Federal Bureau of Mines has at last borne fruit. Congress passed the necessary legislation for this bureau at its session closing June 25, 1910. The appropriation given to the new bureau was a somewhat liberal one and has enabled it to take up its duties with vigor and zest. A disagreement, however, arose in the course of the legislation, resulting in the partition of the work formerly carried on by the Technological Branch of the United States Geological Survey by which the testing of structural materials was transferred to the supervision of the Bureau of Standards instead of the Bureau of Mines.

Under this legislation the Bureau of Standards has taken charge of the clay products laboratory created by the Technologic Branch of the United States Geological Survey at Pittsburg, while the balance of the plant has passed into the control of the Bureau of Mines.

The interest of the Ceramic Society in this matter is purely that of getting the research work on ceramic problems carried through, and it is, of course, immaterial to it as an organization which branch of the federal service shall be entrusted with the execution of this work. The high quality of the research work done by the Bureau of Standards in other fields and the retention by the bureau of the ceramic investigators which this society was largely influential in bringing together in the earlier organization at Pittsburg, seems an excellent guarantee that the interests of this society in the matter will be conserved. At the same time it is not improbable that the Bureau of Mines will be able to take up in due time the investigation of problems relating to the occurrence and winning of clays and the preparation of the clays for the market as raw materials, which will scarcely fall under the terms of the act relating to structural materials. It is therefore possible that this division of the field may result finally in an increase of the work in which the Ceramic Society is interested.

The continued interest of the members of the American Ceramic Society in both of these government bureaus and our sympathetic and effective co-operation with both of them in making them acquainted with our problems and needs is as necessary as at any time in the past.

### New Additions to Clay Literature.

The first paper on the program was by Ross C. Purdy, on "THE RANGE IN COMPOSITION OF GLAZED WHITE WARE BODIES." He dwelt at length on the several properties which tend to delimit the workable range in composition of white ware bodies, finally showing that, all things considered, the users of white ware bodies, whether the ware they make is pottery, tile or insulators, are limited in the possible variations they can make, in the quantity of feldspar, clay and flint used, and that any value there may be in a given recipe lies more in the kinds of clays, feldspars and flints they may be using, and in the proportional parts of each.

The second paper was by Charles F. Binns upon a subject quite similar to that of Mr. Purdy's, entitled "THE INFLUENCE OF BODY UPON GLAZE IN WHITE WARES." He demonstrated that the clay content of white ware bodies could vary at least 10 per cent without causing serious defects in the fitting of the glaze.

Mr. H. C. Mueller in his paper, "THE RELATION BETWEEN THE ARTIST AND THE CHEMIST IN CERAMIC MANUFACTURE," argued for a provision of a section in the American Ceramic Society for the artists, maintaining that the technist and artists should work hand in hand, that our ceramic industries may lead the world in the high character of ware produced.

The Committee on Classification of White Wares developed several new and valuable tests that could be used in comparing the properties of wares, but failed to find an adequate basis of classification. Their failure was not due to want of effort, but to the enormity of the task. It is doubtful if such a classification is possible.

In "CALCULATIONS OF CERAMIC MIXTURES" Mr. Homer F. Staley made clear the fact that ceramic chemists never did attach a strict chemical significance to molecular formula of glazes and bodies as used by our technical ceramists. He attempted to show that in place of these molecular formulae we could calculate glaze batches on basis of like effect of the materials, using factors which would represent the differences in weight of each required.

A paper prepared by the late H. E. Ashley, "CUTLERY MARKS ON WHITE WARES," demonstrated that the marking of glazed wares by silver was possible only by the sulphur contents of the glaze.

In "CHROME-ALUMINA COLORS," by Arthur S. Watts, we had demonstrated the difference between European and our own pottery practices. The American potter would think it expedient to calcine his colors at cone 15, or manufacture wares that require cone 12 in the glost fires. While the stains produced by Mr. Watts proved to have a scientific interest, he himself demonstrated that they would be impractical in America.

The users of fuel-oil were very much benefited by a talk on "FUEL-OIL FURNACE PRACTICE," by A. D. Lee. Mr. Lee has in turn been a miner and furnace engineer. Quite evidently he understands the mixing of air and oil, and which methods are applicable in the burning of all fuels.

In the paper "SOME EXPERIMENTS ON FRETTED ENAMELS," by Mr. Frederic Rhead, the American Ceramic Society had the first contribution from The Peoples University, of St. Louis. Mr. Rhead had a large exhibit of beautiful vases and a paper in which every formula used was made plain in factory terms.

The further contributions on "LOAD TEST UPON FIRE BRICK," by A. V. Bleininger, demonstrated further, the great usefulness of this test.

Mr. A. S. Watts, but recently returned from Europe, gave a very suggestice talk on the "MINING OF CLAYS IN EUROPE." He made plain that one reason European pottery clays were superior to the domestic clays was to be found in the greater care, they used in washing and keeping clean their clays.

"THE RELATION BETWEEN COMPOSITION AND TOUGHNESS," by Lester Ogden, was a continuation of his brother's paper on the same subject. Mr. Ogden proved that the toughness of porcelain was more dependent upon the contents of flint than on that of feldspar or clay. It can not be argued from this, however, that additions of flint or sand to paving brick would be beneficial.

The most surprising and valuable addition to ceramic technology, offered at these meetings, was in the fact as demonstrated by Messrs. Purdy and Potts, that the coefficient of expansion and contraction and the problems of glaze fit or of making of ware to withstand sudden changes in temperature bore no relation to one another. This upsets the basis of many working theories which have been advanced by Seger and others.

Messrs. Henderson and Weimer demonstrated that at about 400° F. electrical insulators ceased to be insulators and became conductors, a fact not known before.

The question of safe drying of clay wares was the theme of papers by Prof. Orton, Prof. Bleininger and Mr. Stephans. Prof Orton's contribution was of particular value in that he showed how the vast deposits in the northwest could be successfully dried. The application of Prof. Orton's scheme will result in larger development of this district.

That swelling of firebrick after placing in the wall of a furnace is not always due to the high silica contents of the clays used was demonstrated by Mr. Ogan. He found one brand of fire brick expanded because of development of a spongy structure.

Aside from the papers briefly referred to above there were twenty-five others which had to be read by title, but which will appar in the transaction of the society.

The society adjourned at 2 p. m. on Thursday, and, after partaking of a lunch, journeyed in automobiles to the place where Washington crossed the Delaware. From thence they went to the magnificent campus and plant of Princeton University. After wandering in and around the buildings for two or more hours the society motored back to Trenton. The crisp air and the many novel experiences of riding on country roads at a speed of from 30 to 45 miles per hour, whetted the appetites of the delegates for the banquet in the evening.

One of the distinctive characteristics of the American Ceramic Society meetings is the insistence upon the "Dutch treat" plan for any entertainment which may be provided. Thus the automobiles for the afternoon ride on Thursday was the only expensive entertainment which would be accepted from the Trenton clay workers. A convention of nearly 100 delegates without the necessity of a local organization and a generous entertainment fund may be a novelty, but such has been the policy of the American Ceramic Society from the first, and the soundness and wisdom of this policy was decidedly proven. No more enjoyable convention was ever held than was this, the 13th annual convention of the American Ceramic Society. To Prof. Edward Orton, Jr., who has been the secretary of the society from the beginning, must be given the credit for the continued growth and strength of the organization. An organization of 400 members with only about 20 floaters is remarkable among clay workers.

## PROGRESS IN BALTIMORE.

A letter from Mr. Alfred Tyler, sales manager for the Hydraulic-Press Brick Co., Baltimore, Md., informs us that the prospects in Baltimore for building during the coming year are excellent. He states that the past year has been one of the most prosperous in the history of that branch. More large representative buildings have been built and all conditions are better than ever before. Mr. Tyler mentions several large buildings started this year, all of which are costing from $300,000 up, including the Emerson Hotel, Fidelity Trust Bldg., Union Station, News Bldg., Blind Asylum, Emerson Warehouse, Mercy Hospital and over 2,000 residences. Mr. Tyler says that without doubt brick continues to be the leading material in that territory for building purposes.

## TROUBLES AT AN END.

Any m nufacturer of machinery is always glad to hear of specific cases where satisfactory results have been secured. The Williams Patent Crusher & Pulverizer Co., of St. Louis, Chicago and San Francisco, is no exception and this company has been particularly favored with testimonials from satisfied customers. One of the latest of these is from the Los Angeles Paving Brick Co., Los Angeles, Cal., which plant is located at Newmark, Cal. This letter informs the Williams Co. that "troubles incurred in grinding the clay are at an end since the installation of your No. 2 hammer machine. Dry pans which were first used, owing to the peculiar nature of the clay and the great amount of moisture it carried were absolute failures. A roller crusher was later set up but this did not produce the fineness or the capacity required."

# WASHINGTON CLAY WORKERS

## Steps Taken Toward a Vigorous Campaign in Behalf of Clay Industry and Organization for the Northwestern States Considered

The Washington Clay Workers' Association starts upon its second year of existence with a general feeling of encouragement on the part of the membership. The association celebrated its first birthday in Seattle recently, with a convention which ranked in details of arrangement and in the character of its program, with the associations of other states.

The situation which brought about the organization of this association is very clearly set forth in an editorial in a recent issue of the Pacific Builder and Engineer, part of which is as follows:

"A year of struggling followed and during the closing days of January, the Washington organization, with invited delegates from Oregon, Idaho, British Columbia and Montana, met in the second convention at Seattle. The primary object of the second convention was to more strongly entrench the clayworkers of the territory mentioned, to accomplish which the Washington group was ready to lose its identity in the Greater Northwest Clayworkers' Association; this, however, was not brought to a satisfactory climax during the convention days and a special committee, to canvass the field, was appointed.

The Denny-Renton Special, on which the Delegates Were Taken to Visit the Plants at Taylor and Renton.

"There are no apparent objections to having a strong, live clayworkers' organization in this territory. From the very nature of the business there is every reason to expect that such a group of men would have a tenacious hold upon all questions affecting the clay products trade.

"To meet the onward strides of concrete in the building field is a foremost problem of the association. That concrete has made such headway in the field of construction, is not due, as one is led to believe, to any particular merit of concrete itself, but to the wise, systematic and efficient publicity given it and paid for by its organized supporters. Hence, publicity is the weapon taken up by the clayworkers, and with it they propose to hold up the hands of the Building Brick Association of America in its splendid work. 'If advertising will sell concrete, how much more,' says The Clayworker, 'should it sell a really meritorious product.?'

"With clay products in the limelight of public appreciation, the next task before the clayworkers' association is the market. The particular sore spot in the clay products of the Greater Northwest is in the building brick class and in the Seattle market."

The editorial goes on to say, that one of the important matters before the association was the question of standardization of brick, and the paper stands very strongly for the adoption of some specific standard. It says that it is difficult to keep the market steady when no two yards are making the same size brick. The wide margin existing in size of Seattle brick, in a measure accounts for the great variation in prices and the uncertainty in market quotations. These matters are very plainly set forth by Mr. W. T. Houlahan in a paper on the subject of standardization.

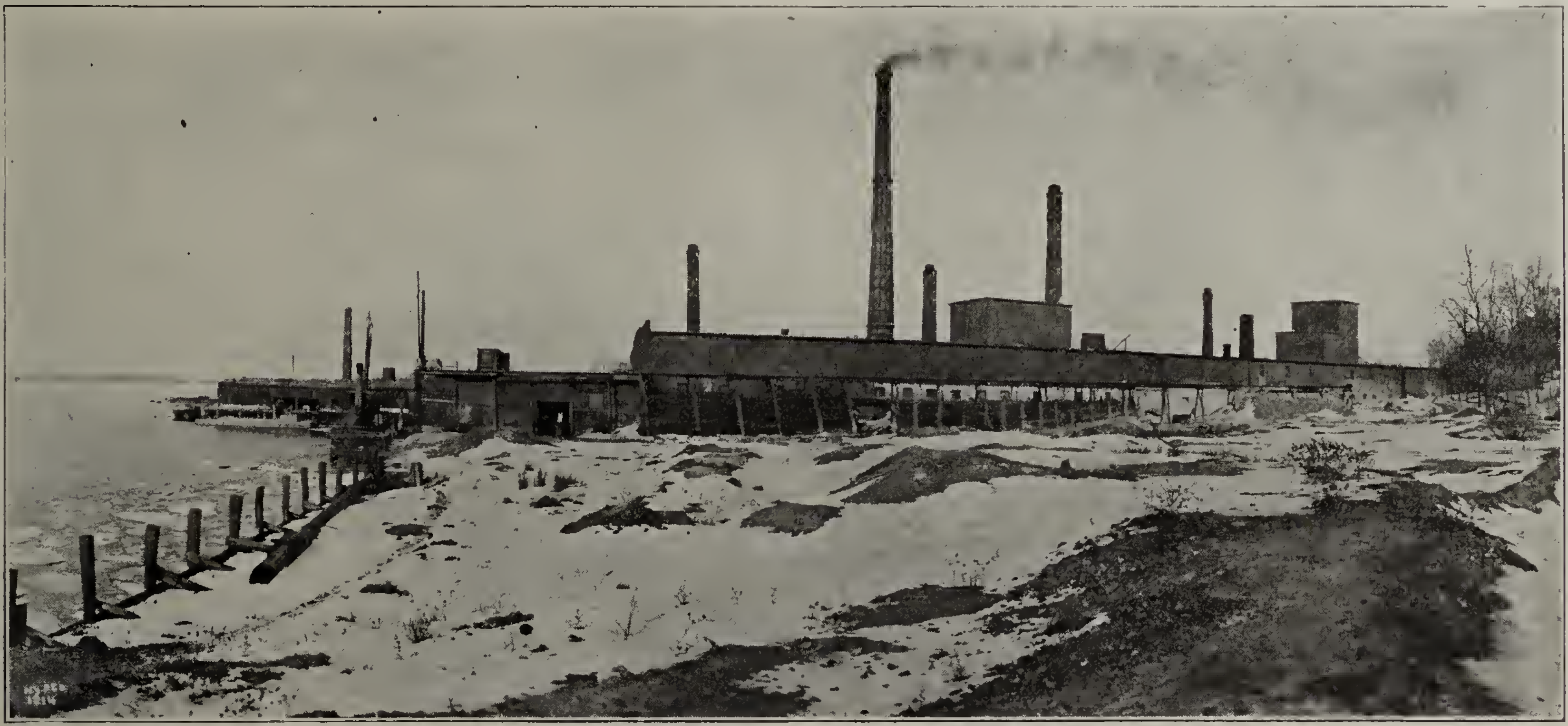
### PROSPEROUS YEAR.

Mr. A. T. Dishman, brick manufacturer of Spokane, Wash., reports a most prosperous year. The output of his plant was 5,000,000 brick with a market value of $45,000, the yearly payroll amounting to about $15,000. The business of the plant increased about 15 per cent during the past year and Mr. Dishman expects to spend about $5,000 for the construction of a new continuous kiln in addition to other improvements about the plant. Only common brick are manufactured, many of which have gone into Spokanes' skyscrapers

# THE KREISCHER BRICK COMPANY

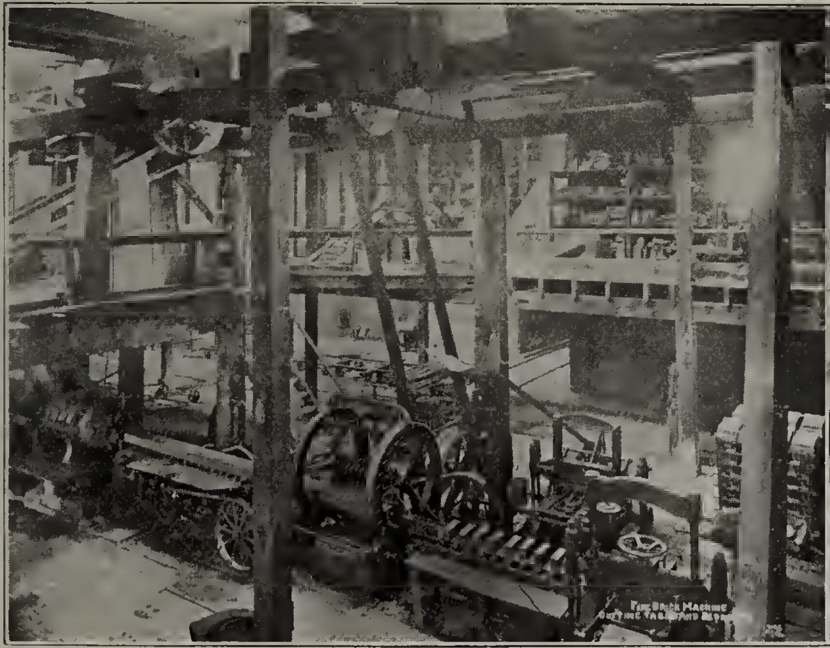
## Enterprise Established in 1845 One of the Most Prominent in the East

This well known and magnificently equipped plant dates its establishment, by Balthaser Kreischer, back to 1845 at Delancey Street and East River, New York City. At this location the business increased to such proportions that it became evident, in order to properly meet the constantly increasing demand for its products, a removal to a more advantageous manufacturing site would have to be made.



View of Kreischer Brick Co., Showing Shipping Docks.

Furthermore, with the rapidly increasing land values of the city and its inadequate manufacturing facilities, it was decided to locate at some point equally accessible to the city, which at the same time offered the best natural advantages for manufacturing purposes. It was with this idea in mind that Kreischerville, Staten Island (now New York City) was selected, at which location the plant has been in operation since 1870.



Brick Machine and Cutting Table.

View of a Drier Floor.

In the years 1876 and 1892 the works suffered total destruction by fires. In both cases, however, rebuilding and improvements were immediately started with the result that today these great works stand in the front rank of the clay working industry of the country, besides possessing the unique local distinction of being the only face brick and fire brick plant within the limits of New York City.

In 1892 it was also decided to begin the manufacture of front brick of various shades and also to establish a terra cotta department, which met with a good measure of success, but owing to the great demand on the company's front brick and fire brick departments and the taking up of the manufacture of paving blocks, it became necessary to abandon the manufacture of terra cotta entirely.

In the early '80's the business was incorporated under New York state laws with the title B. Kreischer & Son, in which, eventually, Mr. Peter Androvett became a director and Mr. Chas. H. Puls, director and secretary. This corporation continued business until the year 1899, when Mr. Peter Androvett became the sole possessor thereof and carried on the business until the spring of 1902, when the present company was incorporated, Mr. Peter Androvett, his oldest son Mr. Murray Androvett and Mr. Chas. H. Puls being the directors.

Under the new management some very radical changes took place and with the installation of new machinery and general increase in manufacturing facilities, the yearly capacity of the works was increased to 30,000,000 brick, consisting of fire brick of all kinds, clay retorts and their settings, special boiler settings, cupola linings, locomotive blocks and linings and in fact all kinds of special fire brick material for every purpose, the company having clay at its disposal especially well adapted for products of this kind. Years of experience and the employment of competent designers mixers and burners resulted in the production of a class of goods, unexcelled in the trade. The company's splendid banks of white and buff clays, which are of very fine texture and especially well adapted to the manufacture of front brick, enables it to place on the market about twenty shades which are in good demand owing to the high quality of the material and care exercised in manufacturing, the leading architects pronouncing the material to be the equal of any produced in this country.

Fire Brick Machine and Crusher at the Plant of the Kreischer Brick Co.

The machinery equipment of the works is complete in every detail, and of its kind, probably the best in use. The plant is operated by a 350 h.p. Wright-Corliss engine and the clay is prepared in double shaft pug mills, of the Penfield type, previous to which a proper degree of pulverization of some of the clays used is obtained by a Williams No. 1 crusher. The final making of the brick is done entirely by machinery of the Raymond pattern, three outfits of which are in evidence. The first consists of a "777" brick machine and is used to make all of the special shape brick which are run out in dies of exactly the form required and then repressed on Perfection hand represses. The second outfit consists of a "777" brick machine, rotary down cut, automatic cutting table and two Victor represses, on which are made all of the front brick in standard, Roman and Norman sizes. The third outfit consists of a "777" brick machine, rotary automatic cutter and a Victor and Eagle repress, and is used entirely for the manufacture of standard size fire brick. The brick are dried in large hot air dryers of the Sharer type and burned in rectangular down draft and round muffle kilns, from which they go to the sorting shed and are sorted according to shade and color and shipped by water to their destinations.

The executive offices and sales department are located at 119 East 23rd St., New York City, where the company occupies an entire floor divided into show rooms and general offices.

The general management of the company is conducted by Mr. Chas. H. Puls, long identified with the clay industry in that section of the country. To those not having a personal acquaintance with this genial gentleman, it suffices to point to the envitable position the company to-day occupies as proof of what untiring zeal and intimate knowledge of conditions governing successful management and the intelligent application of practical ideas is capable of accomplishing when assisted in the manufacturing end by a superintendent such as Mr. Charles Winant, a clay expert, competent to meet the requirements of turning out the highest grade of material of various kinds, to the maximum capacity of the plant, which gives employment to over 150 men in its various departments.

The transportation of the finished product by the company's own lighters and barges, places it in a most advantageous position for effecting prompt shipments as it is not compelled to depend on outside means for this purpose. The advantages of this feature is particularly noticeable in export shipments where almost invariably the shipping notice is of the shortest.

The fuel and transportation departments are under the direct supervision of Mr. Murray Androvett, who has made a special study of the subjects.

The sales and advertising department is in charge of Mr. Oscar R. Maicas, assisted by a staff of well qualified representatives and inquiries addressed to this department regarding either front or fire brick will be given prompt attention.

## THE KANSAS BUFF BRICK & MFG. CO.

The Kansas Buff Brick & Mfg. Co. have moved their general offices from Neodesha, Kans., to the works at Buffville, Kans., four and one-half miles north of Neodesha, where the town of about 500 population consists entirely of their employes.

They have also established branch sales offices and display rooms at 220-22 Reliance Bldg., Kansas City, Mo., and 521 Beacon Bldg., Wichita, Kans.

The Williams Clay Crusher and Pulverizer.

Their growing business is an evidence of the aggressive methods employed by this prosperous company.

## TO HANDLE AMERICAN CLAY.

The Groverman & Co., of Bremen, Germany, the largest dealers in fullers earth in Europe, have made many tests with the fullers earth procurred at O'Quinn, Texas, and have arranged to handle it all together.

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Brick has been laid at Trenton, N. J., on heavy traveled streets and cement grouted joints used for the first time.

# WITH THE BRICK SELLERS

## National Builders' Supply Association Endorses Brick as a Building Material at Its Annual Meeting in Chicago

The National Builders Supply Association is an organization of men who are as much interested in the sale of brick as the manufacturers themselves. These are the men located in the various cities throughout the country who deal directly with the contractors and builders, selling to them the products of the various brick plants as well as the lime, cement and other material required in building construction.

It is, therefore, quite proper that the brick manufacturing interests of the country should take a great interest in the welfare and success of the Builders Supply Association, and it is to be hoped that in the future the brick men will take a more active part in the work of this organization and its annual conventions.

An increased interest on the part of the brick men in the association and an increased interest on the part of the members of the association in brick manufacture was a notable feature of the convention of the Supply Association held at the Congress Hotel in Chicago, February 21st and 22nd. A considerable number of brick manufacturers were present; quite a few have joined the association, and it is expected that a considerable additional number will be added to the membership.

James W. Wardrop, Pittsburg, Pa., Secretary N. B. S. A.

The officials and members gave the brick men a "glad hand" and provided for the proper presentation of brick interests on the program, two important papers being presented to the convention relating to brick, one of them being by E. F. Knight of the Bradford Pressed Brick Co., Bradford, Pa., under the title "Building Brick as a Feature in National Conservation," and another presented by Mr. R C. Penfield president of the American Clay Machinery Co., who talked in a general way upon the relation of the brick manufacturing and brick selling interests, and included in his remarks a very interesting outline of the plans for the coming Brick & Clay Products Exposition to be held in Chicago next year. In behalf of the committee in charge of the show he cordially invited the members of the Builders Supply Association to take part in the exhibition.

There were a number of other interesting papers read before the convention, which caused much favorable comment. The past year has seen a very noted increase in the membership of the National Builders Supply Association, and the last meeting was the largest and most successful thus far held. The attendance was larger, and the work accomplished by the organization looking toward a union with several state supply associations, was conducive of much good, and will tend to strengthen the same in the future.

The new officers were elected as follows:

President, (re-elected) Charles Warner, Wilmington, Del.; secretary, James W. Wardrop, Pittsburg, Pa.; treasurer, Henry W. Classen, Baltimore, Md.. Executive Committee—Charles Warner, chairman; Walter F. Jahncke, vice-chairman; Gordon Willis, St. Louis, Mo.; A. E. Bradshaw, Indianapolis, Ind.; V. H. Kriegshaber, Atlanta, Ga.; Frank S. Wright, Chicago, Ill.; Henry A. Moore, Philadelphia, Pa.; Ambrose Tomkins, Newark, N. J.; Edward S. Walton, Youngstown, O.

The entertainment feature of the meeting was the banquet held in the gold room of the hotel, on the evening of February 22. There was an elaborate spread, and a number of speeches that enlivened the occasion.

The following extract from Secretary Wardrop's report indicates the friendly attitude which the association holds toward brick.

"During the past year your secretary has been working with the brick manufacturers of the United States through the Building Brick Association of America, and through the National Brick Manufacturers' Association. In this work he has been ably assisted by the secretaries of the two associations mentioned and several applications have already been received.

A formal letter of invitation to both organizations was presented at the annual convention of the brick manufacturers at Louisville during the present month and we are expecting favorable returns from their consideration. At the invitation of your secretary two gentlemen have consented to discuss the question of brick before this convention. They are representative men in the business and loyal members of this organization. We have appealed to them for support on the basis of the harmonious and reciprocal relations which should exist. They have charged us with being "owned and operated" by the cement manufacturers. This we have denied in language as strong as we could express and are now trying to prove to the brick manufacturers that this is a builders' supply dealers' association, organized first, last and forever for the benefit of the dealers, and that we desire co-operation and reciprocity with all manufacturers in all lines of building material. Some of the brick manufacturers tell me that they do not seem to be able to enthuse the supply dealers of the country upon the subject of brick and that communications addressed to the dealers are not given even the scant courtesy of a reply. Your secretary does not hesitate to say that this is all wrong. If our principles are right and if we are sincere in applying the same, we, as dealers, owe it to every man who manufacturers an article that enters into the business to seek at his hands the opportunity of distributing his product to the contractor and consumer. Some dealers say that there is no money in handling brick—others say that they have tried it and cannot make it go—and still others say that they do not care to handle brick. Well, gentlemen, we have two brick manufacturers on the program and a number more in the audience. They are here to present their case. They are here to solicit your interest and support. They are here to co-operate with you. They are here to declare a policy in favor of the dealer. They are here to tell you that they must sell their product and that they prefer to sell it through you, and it is up to you to carefully consider the proposition—to measure up to the opportunity—to introduce the relationship that is of benefit to every dealer, and to make such arrangement as will be in full harmony with the "live and let live" principle, and we commend the subject to your most careful consideration."

The paper read by R. C. Penfield, president of the American Clay Machinery Co., on "Building Brick and Its Importance to the Supply Dealers' Trade," follows:

The advantages and convenience of handling units of burned clay, whether brick, hollow block or architectural terra cotta, the fire resisting qualities of these materials, their ability to withstand all climatic changes and conditions, the artistic possibilities of burned clay, each present a theme worthy of an extended paper, while upon the subject of vitrified brick, as a street paving material, a whole volume would be required to recount the history, the present extensive use, and the superiority of vitrified brick as a street paving material. These advantages are worthy of the closest investigation and study by the members of this association, and of every person connected with the building trades, especially when the property owners' best interests are considered.

You, who are visitors in Chicago, could do nothing better than to make an investigation of building practices here in this metropolis. When you consider that in 1871 Chicago was almost entirely consumed by fire and that it not only became necessary to rebuild the city but to find the best building material which would prevent a recurrence of the conflagration, you will concede that Chicago's building practices should be accepted as worthy of consideration and emulation.

Chicago differs from some cities in that, having been wiped out by fire, she precludes a repetition of the catastrophe by accepting the best means of prevention, namely, the almost universal use of brick and other burned clay products. In this way, Chicago has built for the future and has reduced the average loss by fire almost one-half. Government statistics show that the fire loss per capita in the United States is $2.50 while here in Chicago, because of the wide use of burned clay products, it is only $1.75. In England where brick is universally used for buildings the fire loss is but thirty-three cents per capita.

You must not overlook the fact that the Government statistics show that the clay products industry is the third largest mineral industry in the United States, ranking second only to coal and iron. Also I may say that you can safely take Chicago as an example because of all of the common building brick made in the United States ten per cent are made in the Chicago territory and most of that ten per cent are used right here, which will show you how thoroughly the building trade of Chicago believes in brick.

I cannot help but believe that the products of burned clay present a very important field to the members of this association, and likewise that the members of this association afford a natural and most excellent means of placing many of the burned clay products in the hands of the user or ultimate buyer.

It is undoubtedly a fact that a common brick is the very cheapest manufactured article ton for ton, when the cost of plant, labor and fuel used in its manufacture are all considered. Being so cheap and having such a highly respectable character, with a pedigree dating back to the early dawn of history, the brick manufacturers. especialy, have almost entirely neglected the advantages of modern publicity. The clay interests of the country are, to a large extent, unorganized. They are as a rule small manufacturers who cannot afford, singly, to spend large sums of money to place the unquestioned advantages of clay products before the building public. On the other hand, there are other building product manufacturers who are operating big plants with a large amount of capital. They have fewer units to operate and more money and they have gotten together to spend big money to advance the interests of their industry. In this way the public has been led to use their material beyond its legtimate field and to the detriment of the owner of the building, where brick or other clay products would have been better. There is room for both materials, and the interests of the investor can better be taken care of by the use of either where it is best adapted. The building trade has been excusable for using other material than brick and clay products because the advantages of burned clay have not been fully and properly presented to the trade and especially to the building public.

We are aiming to overcome this defect by putting on a Clay Products Exposition, and next year we hope to hold a show here in Chicgo, that will give the building trade and the people a more adequate idea of the importance of the clay industry and the superiority of burned clay as a building material.

England has led the United States, not only in the recognition of burned clay as a building material, but in promoting its use. They have been giving clay products expositions over there in London for some years.

At a recent annual meeting of the Illinois Clay Manufacturers' Association, a committee was appointed to arrange for a brick and clay products show to be held in Chicago, early in 1912. This exposition to embrace the whole range of clay products, such as all kinds of brick, common, face, enameled and fire brick, fancy and ornamental. All kinds of hollow ware, fire proofing, electrical conduits, vitrified sewer pipe, culvert pipe and flue linings, architectural terra cotta, ornamental terra cotta, wall and floor tile, roofing tile, fireplaces, mantels and interior finish of brick, terra cotta and faience, paving brick, farm underdrainage and drain tile with exhibit by U. S. Government, table and art pottery, sanitary ware bathtubs, etc.

The committee consists of:

Wm. Schlake, president Illinois Brick Co., Chicago.

Roger T. Combs, of the Thomas Moulding Co., Chicago.

A. T. Leach, of Brick & Clay Record, Chicago.

Theo. A. Randall, of The Clay Worker, and secretary of the National Brick Association, and being an enthusiastic advocate of this Clay Products Show, I have been named as a member of this committee.

At a meeting of this committee held today, I have been authorized to extend an invitation to all members of this association to attend and exhibit at this Brick and Clay Products Show. We certainly hope to give an exhibition of the clay industry that will be a revelation, not only to the public, but to the members of the industry as well. We hope that you can hold your next convention in Chicago during the Brick & Clay Products Show week and as early an announcement as possible, regarding date will be made. This exposition will include everything made of clay, whether structural or ornamental. You will, therefore, see that not only the building trades but their clients, and the public generally, will be interested. The exposition is backed by all the clay workers' organizations of the country and by the brick manufacturers of Chicago, and that means something, as Chicago brick makers lead the world in aggressiveness and modern methods.

Before leaving you I want to renew my invitation to you to take part in our exposition. We can promise you something interesting and some things that will be new and beneficial to you. These shows are a good thing and to show you that we are not biased I will confess that we have attended the shows of other building materials.

Our advertising manager, Mr. F. L. Hopley, went to one of these shows and he came away a believer in the other building material, for purposes where it was best adapted, but to illustrate the evil effects of its misuse he writes the following verses, with which, thanking you for your kind attention, I will conclude my remarks:

Mary took her little lamb
  To see the cement show,
But thoughtlessly she left him there
  To wander to and fro.

He trotted 'round from booth to booth
  But not on pleasure bent.
He said, "I came to this big show
  To learn about cement."

He found at noontime in one booth
  A sack of fine gray feed;
'Twas "recommended highly,"
  He filled up with great greed.

But soon he felt a little pain
  Beneath his pinafore,
It grew and grew and grew and grew
  Till he had pains galore.

And thus he found that poor cement
  Was his undoing quite,
He cast about for quick relief
  From his most painful plight.

At last he got a good hot brick
  To lay upon the pain,
And soon the brick produced a cure,
  And he was well again.

This lamb, like others, has found out
  Though from cement they're sick,
Their ills will quickly disappear,
  When they go back to "Brick."

## ACCIDENT AT BRICK PLANT.

It is quite probable that the Illinois Brick Co. will not care to further patronize the concrete building industry, since the disastrous accident which occurred at its plant recently, which caused the death of four employes and the injury of a number of others.

It is only another instance of the unreliability of concrete as a building material. The concrete roof in the boiler room collapsed suddenly, coming down with a crash, inflicting serious injury to all in the room. As usual, the excuse is offered that the steel construction was not properly planned, but it is only a continuation of the old story which goes to prove that concrete cannot be relied upon for building purposes.

## ONE OF OHIO'S PROGRESSIVE PLANTS.

A novel feature at the plant of the Alliance (O.) Clay Product Co. is that the clay is mined in one county and and made up in another, Stark and Mahoning respectively.

The hard shale is procured at a depth of 35 ft., and is blasted, broken up and loaded into cars, then hauled to the plant by mules. All work in the mine is done by contract labor, under direction of the company. About 8 men are required in the mine to get out 125 to 150 cars per day.

From Mine to Factory, Clay Products Co., Alliance, O.

Beneath the 35-ft. vein of shale is a 3-ft. vein of coal, below the coal is a fine bed of fire clay at least 15 ft. deep. The plant has a yearly capacity of 7,500,000 brick including building, paving and fire brick. The power house equipment consists of a Buckeye 150 H. P. engine and a 125 H. P. boiler.

The stiff mud process is used in the "Freese Mammoth, Jr." machine. A Stevenson hand and a Richardson repress are also used. The drying is accomplished by the "direct heat system". Ten round down draft 30 ft. kilns comprise the kiln battery.

J. B. Wilcox and Jacob Rahm.
"On the Job" at Plant of Alliance (O.) Clay Product Co.

Coal is used both for burning and power. Thirty men constitute the working force of the institution which is capitalized at $50,000. Mr. O. U. Walker is manager and Jacob Rahn, the superintendent.

# The Behavior of Fire Bricks in Furnaces Under Load Conditions

By A. V. Bleininger and G. H. Brown.

*(Continued from Jan. 1st issue)*

The molecular weight of silica ($SiO_2$) = 60; of alumina ($Al_2O_3$) = 102; of titanium oxide ($TiO_2$) = 80.1; of ferric oxide ($Fe_2O_3$) = 160; of lime ($CaO$) = 56; of magnesia ($MgO$) = 40; of potash ($K_2O$) = 94.2; of soda ($Na_2O$) = 62.

Carrying out the operations indicated above we have:

$$\begin{aligned}
81.60 \div 60 &= 1.3600\\
14.55 \div 102 &= 0.1430\\
0.49 \div 80.1 &= 0.0060\\
1.15 \div 160 &= 0.0070\\
0.37 \div 56 &= 0.0066\\
0.27 \div 40 &= 0.0067\\
1.08 \div 94.2 &= 0.0114\\
0.67 \div 62 &= 0.0108
\end{aligned}$$

$$\begin{aligned}
1.3600 \div 0.143 &= 9.510\\
0.1430 \div 0.143 &= 1.000\\
0.0060 \div 0.143 &= 0.042\\
0.0070 \div 0.143 &= 0.049\\
0.0066 \div 0.143 &= 0.046\\
0.0067 \div 0.143 &= 0.047\\
0.0114 \div 0.143 &= 0.079\\
0.0108 \div 0.143 &= 0.074
\end{aligned}$$

Owing to the fact that ferric oxide should be represented in the formula as ferrous oxide, it is necessary to multiply this factor by 2, which will result in $0.049 \times 2 = 0.098$. Adding all of the fluxes, which include everything but the silica, alumina and titanium oxide, we obtain the sum of $0.098 + 0.046 + 0.047 + 0.079 + 0.074 = 0.344$.

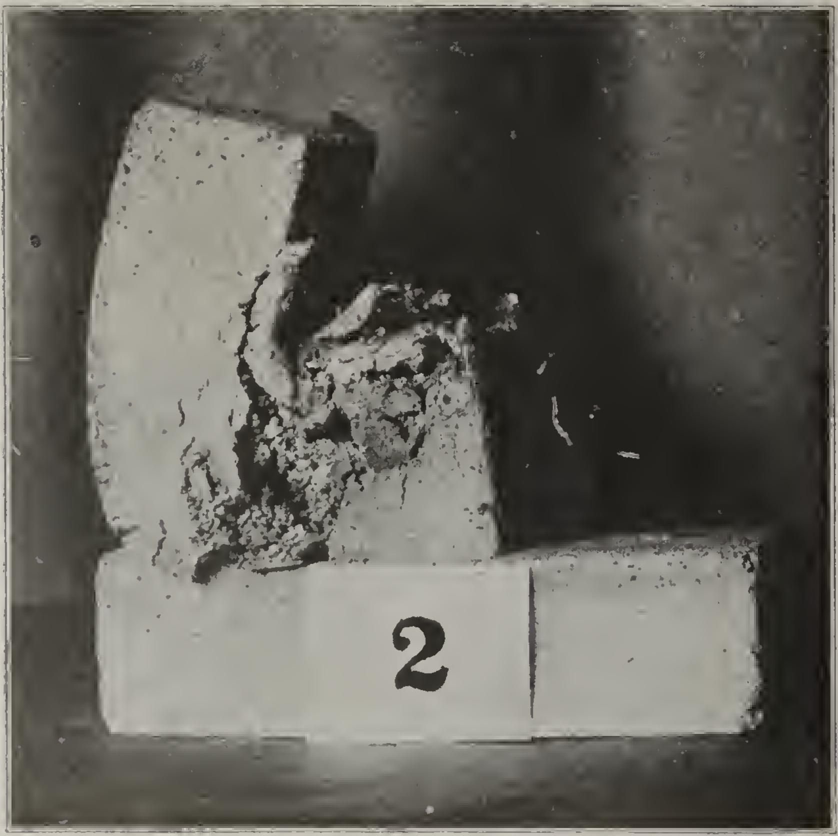

Fig. 4.

The formula of this clay composition then would be 0.344 RO, $Al_2O_3$, 9.51, $SiO_2$, in which the alumina is always equal to 1. This simplifies greatly the work of estimating the refractoriness of this material, as we need look only at the fluxes (RO) and the silica. The smaller the value of RO the better clay are we dealing with; likewise the silica should be as low as possible. In a pure clay we would then have no RO and the formula $Al_2O_3$, 2 $SiO_2$.

*$RO = K_2O + Na_2O + CaO + MgO + FeO$

In Figs. 4, 5, 6 and 7 the photographs of samples No. 2, 9, 12 and 16 are shown illustrating three failures and the appearance of a satisfactory brick after the test.

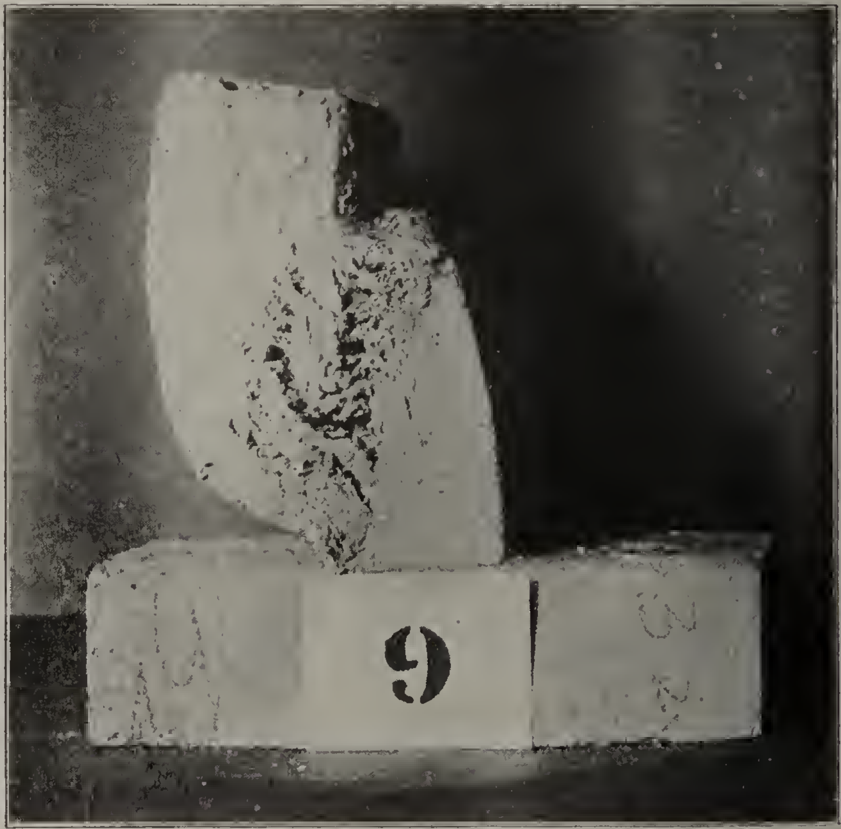

Fig. 5.

From these it appears that in the cases where the brick were badly distorted and crushed, in each case a certain degree of softening took place, as is clearly indicated by the curved surfaces. It is evident that these brick attained a viscous condition in which they were not able to carry the load imposed upon them, though the latter is small compared with the crushing strength at the atmospheric temperature. In no case is the fracture sharp, but invariably clear evidence of flow is produced.

In carrying on the load test as the temperature rises, the beam is first raised, due to the expansion of the furnace bottom and the brick, a quiescent stage is then reached, after which, from 1130° to 1290°, a well defined deflection begins, caused by the contraction of the brick. In some brick this deflection continues at a very slow rate, or reaches a condition of equilibrium some time after the temperature has been raised to 1300°. This kind does not fail under the conditions of the test, and the later deflection starts the more apt is the brick to stand up. The materials failing under this test show a more or less early start in settling, and the rate at which this takes place increases with the temperature, till finally it becomes so rapid that it is impossible to keep the beam level. Failure then is merely a matter of minutes, and takes place very suddenly. In every case, therefore, softening precedes failure. With a third kind of material (of silicious composition, low in fluxes) the rise in height remains stationary for quite a while, followed by a long quiescent period. After the maximum temperature is reached a very slow and gradual settle takes place, which is quite small and decreases in rate as the temperature is kept constant. Such materials remain perfectly srtaight, and shrink but a small amount.

Undoubtedly some of the brick tested would have been deformed badly on long time tests, which it was impossible to carry out under the conditions of the plant, but in several cases where the time of testing was extended considerably a kind of equilibrium seemed to be reached, after which no observable changes took place. It is very likely that in these cases solution of the more refractory portion of the brick took place, which stiffened up the bonding material.

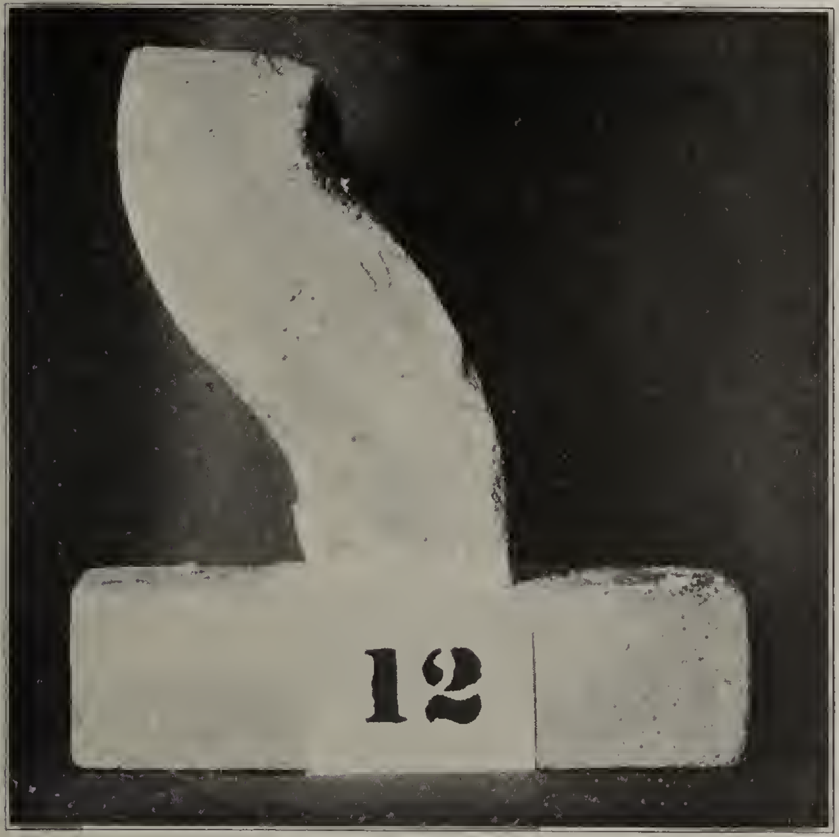

Fig. 6.

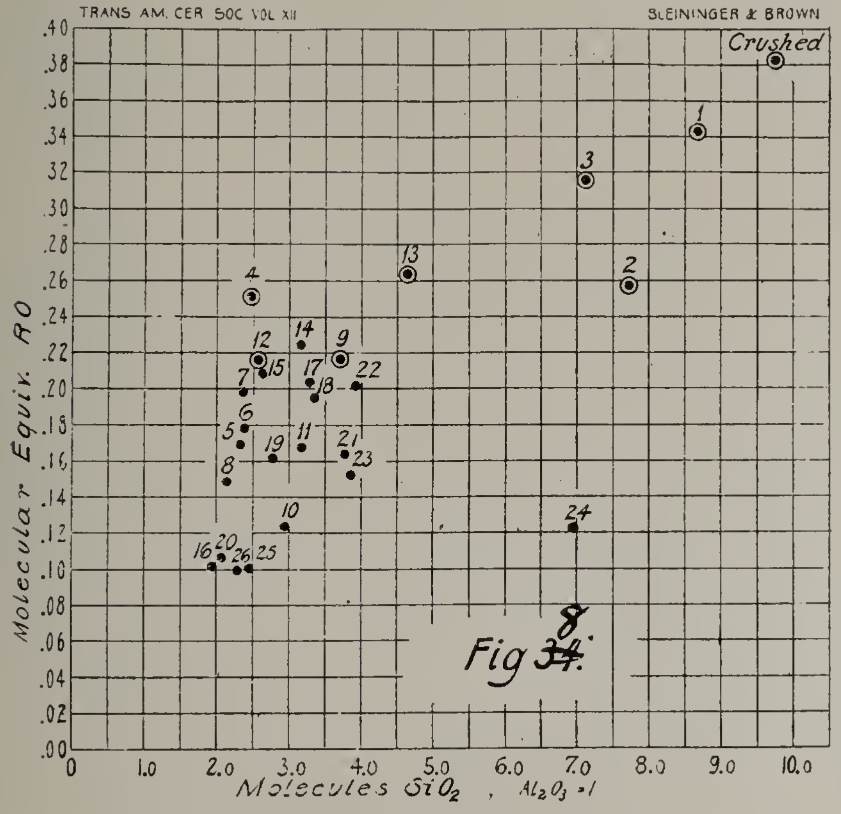

Fig. 8.

Inspection of the failures shows plainly that the more refractory flint clay has not softened to the slightest extent. The grains have lost none of their original identity. They seemed to have slid upon each other, the bond clay acting analogously to a lubricant. From this it follows that, no matter how excellent the major constituent of the brick may be as to refractoriness, if the bond clay is deficient the load carrying power of the product is impaired. In other words, as far as this property is concerned, a fire brick is not any better than its weakest constituent.

It is observed that there is some rough relation between the softening temperature and the ability of the bricks to stand up under this test, but it is also seen that this is not true unqualifiedly. Test No. 16 is one of the decided exceptions. The failures not only show a softening point below cone 30 but also a certain high content of fluxes, i. e., $K_2O$, $Na_2O$, MgO, CaO and FeO. On the other hand, while a brick may soften below cone 30, if its content of RO constituents is low it will resist the conditions of the load test without difficulty. In No. 24 we have an illustration of this kind, and many silica brick show similar results. Nevertheless, it seems quite clear that the load test is in a measure a determination of the refractoriness, in spite of the low temperature at which it is conducted.

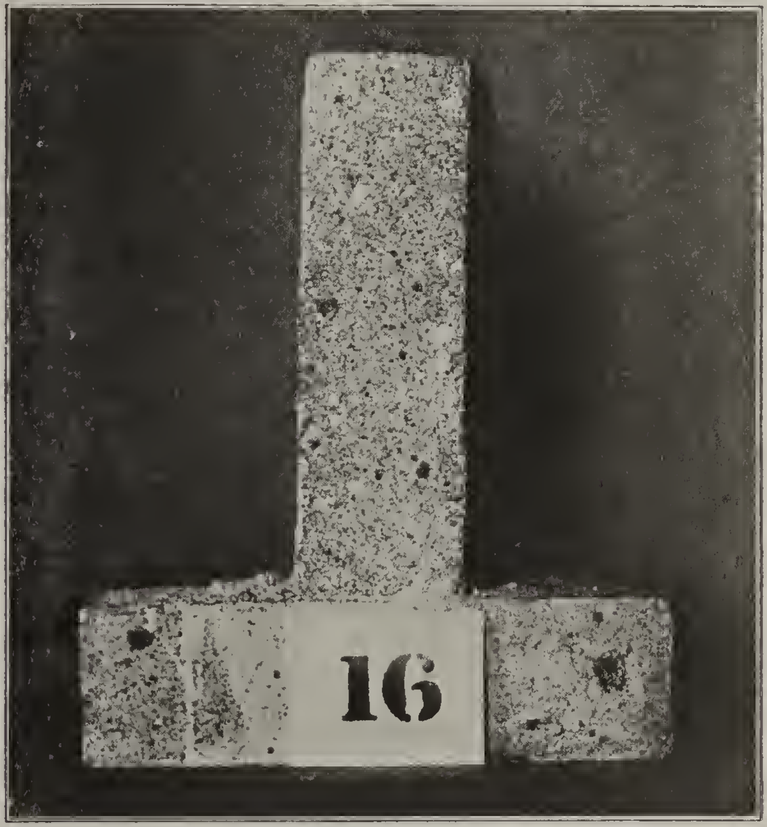

Fig. 7.

In Fig. 8 the failures due to the crushing of the brick are plotted and it is observed at once that the most significant factor seems to be the flux or RO content. It is not to be expected that a sharp division line exists between the area of failure and that of satisfactory load carrying ability, since in some cases the iron, which constitutes part of the RO, may be present in the form of larger grains, in which condition it is not detrimental. The fact is again shown that neither the softening temperature nor the chemical analysis alone produces the information brought out by the load test. Given all three of these data, however, a very good presentation of the refractory resistance of a fire brick is obtained.

In testing brick made from a mixture of high grade flint and the ordinary bond clay it must be remembered that the more thoroughly the two materials are ground and blended together, the better would the body behave in the load test until finally the effect would be that corresponding to a single clay of the average composition, though even in this case it would remain a somewhat inferior material, owing to the high content of fluxes. The more impure the bond clay, therefore, the more complete and intimate should the mixture be.

An analysis of the relation between the initial, cold-crushing strength and the load behavior, shows no apparent connection, but the fact is brought out that low initial strength is a handicap. Bricks Nos. 4 and 11 are examples of this observation. While No. 4 would have failed irrespective of its cold-crushing strength, the failure was more complete on account of its weakness, and No. 11 in all probability would have shown a very much smaller condensation, in fact, would have stood the test.

The hardness of burning in a general way is a factor worthy of consideration. Although burning to a high temperature cannot, in the nature of the case, effect any fundamental change, and cannot convert a low grade material into a good one, our work has shown that well burnt brick stand up better than soft burnt products. This is due, not only to the greater compactness of the body, but also to the change in the composition of the bonding material where such is used. In other words, hard burning will cause the plastic clay, usually decidedly less refractory than the flint, to dissolve some of the fine part of the better material, thus increasing its own refractoriness and hence its resistance to load conditions. For instance, No. 26 would have shown up better if it had been burnt harder.

To what extent other changes, such as the formation of sillimanite at higher temperatures, would have a beneficial effect, it was not attempted to determine.

For the purpose of selecting materials for government use, the tentative requirement was made that under the conditions of this test a 9-in. brick should not shorten more than one inch.

The results of the second series of tests in which the load is 50 lbs. per square inch and the temperature 1,350° C., are very much like those obtained in the first series, but appear to bring out more the question of flow due to softening being somewhat less dependent upon the initial strength of the brick. It is intended to use the latter conditions in all further work.

### Refractories Made from One Clay.

As to fire bricks made from a clay material which is sufficiently plastic so as to be used alone, it is clear that its ability to carry loads depends simply upon its composition. Some of the very best tests have been obtained from materials of this kind. This case is the simplest and needs no particular attention, since a clay will stand up or fail by virtue of its own quality. A pure clay of moderate plasticity would be the ideal material for the manufacture of fire brick. Since, however, such clays are usually not available, the question of judging them as to their composition deserves some attention from the standpoint of their load carrying capacity. From this point of view the most important consideration is that of the amount of fluxes.

At the high temperatures involved, the presence of even a small amount of fluxes becomes a potent factor, and hence it is far better to select a clay higher in silica and low in fluxes than a clay possessing the silica-alumina ratio of koalin but higher in fluxes. The effect of silica in lowering the refractoriness of clays is commonly exaggerated as far as practical results are concerned, and it is usually not necessary to reject a clay on this account. However, high silica and high fluxes make a dangerous combination. From this it follows that a clay fairly high in fluxes, corresponding for instance to 0.22 RO. $Al_2O_3$ 2 $SiO_2$, would be improved by the dilution with a silicious material low in fluxes, or even by the addition of a clean sandstone, the principal requirement being intimate blending and grinding.

In regard to the fluxes present in a clay, the state and size of grain of the iron is of importance, for it is evident that coarser grains of iron minerals will do no harm, though in the analysis they contribute their share towards raising the amount of fluxes. An effort should be made to determine the amount of such grains and to make the proper correction in the analysis.

The fluxes are an important factor in the ability of refractories to carry loads, inasmuch as they become active at low temperatures, as has been shown in the table of results, by forming easily fusible silicates. As the temperature rises increasing amounts of silica and alumina are dissolved, and it becomes, therefore, simply a matter of the amount of this fused matter and its viscosity, whether or not a given refractory will stand up at the temperature in question. As the temperature rises or the load is increased, a point is reached where the entire body becomes too viscous to retain its shape.

By grinding the clay as coarse as possible, conditions are improved, as in doing this the formation temperature of the fusible silicates is raised, since the process of solution is hindered, and by these means it may be possible to bring the product out of the danger zone. In time, however, equilibrium conditions are approached closer and closer, so that finally the brick may fail under the same conditions under which they stood up at first.

### Brick Made from Flint and Bond Clay.

In this case we are dealing with comparatively coarse grains of flint and fine grains of bond clay. These two materials are mixed and blended as far as the processes customary at the present time permit it. The bond clay breaks up more readily, and the plastic mass produced by it cements together the grains of flint clay and calcine. Assuming that the flint clay is of good quality, the load carrying capacity of the product depends upon the bond, as has been shown above. It is evident that if the flint is inferior the product suffers accordingly. These two materials may be considered from the standpoints of chemical composition, vitrification range and fineness of grain.

### Flint Clay.

This material, the geological origin of which is still in dispute, is deficient in plasticity, although by very fine grinding it may become sufficiently plastic to be molded. It is of conchoidal fracture, often quite hard, and at its best approaches pure kaolin in composition, being often surprisingly low in fluxes. Its drying shrinkage is practically nil, but in burning it suffers as a rule a decided contraction in exterior volume. Its refractoriness, when pure, is very high. A brick made from flint clay (by fine and long continued grinding) is able to carry high loads. As far as refractoriness is concerned, it is good practice to grind it quite coarsely for reasons already indicated. The fact that occasionally it is in part calcined does not affect its refractory behavior, but simply corrects the shrinkage suffered in burning.

The physical characteristics of flint clay are not always a synonym for high refractory quality, as the writers have seen clays of this type which are decidedly inferior.

### Plastic Bond Clays.

In these materials a good grade of plasticity is desirable, though this is less important where their refractoriness is high. In clays of greater fusibility high plasticity enables the manufacturer to cut down its amount to a minimum. In the selection of a bond clay it is evident that its vitrification range should be as long as possible, i. e., the temperature at which it becomes dense and non-absorbent should be as high as possible. The chemical composition and inherent mineral structure are thus most readily expressed by means of porosity-temperature curves, such as have been frequently described in these transactions, and which have been employed by Purdy in the study of Illinois fire clays. In making such tests, the time of burning should approach as much as possible the duration of the burns in actual practice. What has been said of the chemical composition of clays under the head of bricks made from one clay applies also here. The main consideration is that the amount of fluxes be as low as possible, irrespective of the silica or alumina content.

As to fineness of grain, it might be said that the grinding should not be carried any farther than is necessary to develop good plasticity.

### Improvement of Bond Clay.

If a flint-bond-clay mixture should prove unsatisfactory as regards its ability to carry loads, the first step would be to cut down the amount of plastic clay if possible. If this should not be possible or beneficial, the plastic material could be improved by grinding it intimately with a portion of the flint clay to such a degree of fineness as would insure thorough incorporation. This could be done by dry or, preferably, wet grinding. In the latter case it might be possible to pug the additional, coarser flint clay into the slip, which naturally would be maintained as thick as possible. The finely ground flint would not remain inert but would be sure to possess some plasticity.

By some such means as have been indicated here, it would not seem a difficult matter in most cases to manufacture products fulfilling all reasonable conditions as to crushing strength at the usual furnace temperatures. In addition, by paying attention to the sizing of the ground clays, so as to produce as dense a structure as possible, by the use of less water or by adopting dry pressing, the load carrying ability of the brick is increased. Likewise, burning at a higher temperature assists in bringing about the same result. Experiments carried on by the writers have shown that harder burning has increased the strength of fire brick appreciably.

### Conclusions.

1. The softening temperature of fire brick specimens is not a safe criterion of the resistance to load conditions at the average furnace temperatures. The same is true of the chemical analysis. By means of both the so-called melting point and the chemical analysis, the load behavior may be approximated. This cannot take the place, however, of a direct test. The RO constituents (including the iron as FeO) should be as low as possible, and for best results should not exceed 0.22 equivalent. The content of fluxes is more important than the silica content.

2. The test described appears to fulfill the requirements of a load test for fire brick, since the results are consistent and admit of close checking. It is recommended that the load be 50 lbs. per sq. in. and the temperature 1,350° C. A No. 1 brick should show no marked deformation and should not be shortened more than one inch, for the standard nine inch length. The test estimates in a measure the refractoriness.

3. From the results of this test it appears that the amount and fusibility of the least refractory clay constituent govern the behavior of the brick under load. Improvement will result by grinding the less refractory clay intimately with flint clay or even silicious materials, low in flux, improving the density, and by harder burning.

## CAPTAIN JOHN PORTER.

There is no more active person in the paving and fire-brick industry today than Capt. John Porter, who is probably more widely known in this trade than any other fire brick or paving salesman or manufacturer.

Born in Martins Ferry, O., about seventy-four years ago, he was quick to discern the mineral wealth of the hills in the Upper Ohio Valley. When but a boy, he moved to New Cumberland, W. Va., with his parents and in 1893 moved to Kenilworth, a few miles north of the place on the Ohio river, where he has since resided.

During the last November election in West Virginia, Capt. Porter was the Republican candidate for member of the House of Delegates (Representative) and won his race in a walk. This is the first political office Mr. Porter ever sought, and it was just "forced" upon him by his hundreds of friends in Hancock Co. He will take his seat as representative as soon as the next session of the Legislature convenes.

Capt. Porter was one of the first towboat owners operating on the Ohio river between Pittsburg and Cincinnati. He went through the famous yellow fever scare many years ago, an incident in the lives of river-boat owners and shippers that will not soon be forgotten.

Capt. John. Porter.

Clay in the Hancock Co. hills was first discovered by Mr. Porter, and in a little while the erection of the "Sligo," "Union," "Etna" was completed The "Eagle" plant, which had been built in the meantime, was purchased by Mr. Porter's interests, and somewhat later he rebuilt the "Rockyside."

Mr. Porter formerly owned all of the plants now operated under the management of the Mack Manufacturing Co., of Pittsburg and Philadelphia.

It was twenty-seven years ago when Mr. Porter started to make and sell paving brick. The first brick pavement was laid in Wheeling, W. Va., with brick made at the Porter plant. Two years afterwards, or twenty-four years ago, Mr. Porter went to Cleveland and had a talk with Tom L. Johnson about street pavements. Mr. Johnson was at that time deeply interested in the building of street railways, and the problem that was troubling him was the proper roadway for the mules or horses that were to pull the cars. This conference resulted in a short distance of roadway between the tracks being laid with brick, and the "sample road" was so successful that an order for 2,000,000 paving brick followed.

Since then, the success of the paved street was assured. Mr. Porter has sold millions upon millions of paving brick and block, and today is one of the most active brick salesmen "on the road."

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

BRICK AND CLAY RECORD

Vol. XXXVIII. MARCH 1, 1911 No. 5

## JUST BRICKS.

"The Christian Science Monitor," edited at Boston, Mass., contains some very able editorials on topics of general interest to the industrial and commercial world. A recent issue contained the following interesting article concerning brick, under the above title:

"Brick, in a strict sense of the word, is no longer brick. It is only a few years ago that brick was brick, with all that the word implied, and then the term "a common brickbat" was meant to convey the idea that a brickbat could be, and generally was, about as common a thing as the experience of modern man ever grappled with, unless, indeed, he permitted his thoughts to run back to the clod in which the common brickbat had its origin. That is to say, in olden times—thirty or forty years ago—a brick was an object 8½ by 4¼ by 2 in. in dimension, and red. In that far-away period there was scarcely any difference between brick, to any body except the small boy, and to him the difference was peculiar and characteristic. It consisted mostly in the fact that there was a kind of brick which nobody could find when it was wanted, and another kind against which one was sure to stub one's toes when it wasn't wanted. To adults, however, and to mankind in general all brick looked alike, felt alike, and when piled one on top of the other made the same kind of a wall, except where those who could afford it had the job tuck-pointed.

"But marvelous has been the rise of the brick from its primitive condition. It is no longer made by hand and laid upon the earth to be sun-dried. It is made in mills, in factories, in works, by the use of machinery as ingenious and as complicated and costly as any employed in the industrial world. A finely developed artistic sense, combined with mechanical skill, has transformed the entire trade of brick-making and diversified, multiplied and beautified its products.

"The modern brick need not be oblong or square. It need not be brick-shaped. It need not be red. It can take on any form, any color and any tint desired by the architect, the decorator or the client of either. It can be granite-faced, marble-faced or porcelain-faced. It can be made into a Grecian cornice. It can be made the capital of Corinthian, Ionic or composite pillar. It can be used to embellish the interior of a building as well as to ornament the exterior, and it holds its own among the best that refinement can command or money can buy.

"This is the point to which the once common brick has attained, in one respect. In another respect, whereas the brick industry had grown to such an extent ten years ago as to represent in money $100,000,000, it has now reached a stage where it calls for a working capital of $250,000,000, while its representative publication and namesake, Brick and Clay Record, is one of the handsomest trade journals in America.

"Of course many of the things spoken of above are now, for convenience, called clay products or tilings, but this does not affect the main proposition, which is that the brick industry, taken as a whole, has developed into one of foremost importance, and the development has helped to prove the relationship of art and common things."

## PREPARE FOR NEXT SEASON.

The majority of brick and tile makers who work only during "the season," shut up the plant until spring opens. This is all very well for the work-people, but the man in charge of the yard must have a little more foresight. He must begin to think and plan in order that he may be ready to act when the opportunity arises next spring. Among other matters he should examine his plant very carefully, and a comparatively small repair now may save a big bill later on. The machinery should be well stored, any parts which are likely to be damaged by damp being well greased and wrapped up. The molds or dies should also be very carefully examined, and any repairs or alterations—new linings and so on—should be done at once, or at least some note should be made of what is required, and some memo made so that the subject will be automatically brought to mind before the season begins.

So many workers lose heavily through the simple omission to take reasonable precautions. Loose boards and hack covers form a great temptation to people who are short of firewood, and should be kept under lock and key. Machinery soon rusts unless preserved, and the careless or thoughtless owner of a plant may find, when he wishes to commence work again, that the sum to be expended in repairs and renewals is far larger than he anticipated. This might have been avoided by care at the end of the previous season.

Therefore, prepare for next season now.

## GOOD NEWS FOR YOU.

We have a buyer for that machine you have discarded for a larger and better one.

Where is he?

Among our thousands of readers.

How will you reach him?

Place an ad in our classified columns.

One advertiser spent $1.00 for an ad in our January 14th issue. He received fifty answers.

Two cents to get in touch with a possible buyer.

Don't wait. Beat the other fellow to it.

Send your ad today. We will do the rest.

## "SLOW BURNING" CONSTRUCTION.

We clipped the following from the *Chicago Record-Herald* of recent date:

> "The planing mill of the Great Southern Lumber Co., Bogulusa, La., which burned recently, with a total loss of $200,000 and no insurance, was not insured because it was believed to be the best unsprinklered planing mill from an insurance standpoint in the country. It was built of steel on a concrete foundation, the girders all being of steel set in concrete. The floor was of heavy planking, resting on the steel girders, and the power was electric, with individual motors for each machine, with standard fire protection. The fire started early in the morning, either from a hotbox or an electric spark, and spread so rapidly that the night shift fled in panic without using the hose. When they recovered themselves and tried to fight the fire it had too good a start and the mill was entirely destroyed. The steel sides and roof and the girders were bent and melted into a chaotic mass and dynamite had to be used to make possible the erection of the new mill."

This shows what is liable to befall the new-fangled, "slow burning" or "mill construction" of steel and concrete and wood, instead of all wood. Note that the destruction was just about as rapid as if it had been all wood.

Canada, too, seems to be having its troubles with concrete. *La Presse*, Montreal, of August 11th, tells us of the collapse of a concrete wall about 100 ft. by 20 ft. high, a retaining wall near some stables being built on Ontario St. between St. Dennis and Berry Sts. Three houses on the opposite side of the alley were badly damaged and though no one was killed, several people just barely escaped with their lives.

*The Patrie*, Montreal, of August 15th, tells in a dispatch from Massena, N. Y., that an immense concrete wall being built by the T. A. Gillepsie Construction Co., New York, for the St. Lawrence Power Co., Massena, collapsed and that four of the workmen had been killed in the crash and so far 30 others, badly hurt, had been extricated from the debris.

And so the record piles up. It is about time for such conservative journals as the *Engineering News* to again exclaim, "carelessness, incompetence and unscrupulous skinning appear to have about reached the limit in reinforced concrete construction. . . . The gray of our concrete structures is already too much stained with blood. Shall we allow that stain to spread and grow still darker?"

## PRACTICAL ADVERTISING.

As we have contended for some time, the promotion of clay products is largely a local proposition, each locality having its particular conditions to contend with. In some localities the effort should be devoted to the education of the public to the superiority of brick construction over frame construction. In other localities the inferiority of frame and concrete construction should be shown up fully. While in others the effort may be entirely devoted to educating the public to the artistic possibilities, permanence and beauty of clay construction. In any case it is the business of each manufacturer of clay products to do his utmost to promote the increased use of brick and other clay building material in his own locality.

The purpose and object of a national organization, such as the Building Brick Association of America, is to cooperate with the manufacturers of clay products in their efforts to promote sales in their own particular localities. Such an organization, through the co-operation of its members, is enabled to provide the ammunition with which the local selling campaign is fought, and the value of this work cannot be estimated. No individual could possibly undertake to prepare such literature as is being issued by the Building Brick Association of America. The small booklets published by the association, and which can be obtained by the members for from one to three cents per copy, are the very best kind of literature for local distribution and for educating architects, builders and the general public to the superiority of brick construction. The same can be said of the more elaborate book entitled "A House of Brick," showing designs and specifications for houses of an estimated cost of $10,000. Such a book will have the strongest possible effect upon architects and those who are enabled to build the best class of house. The new book which will soon be ready describing a house of brick for $4,000, will be the most valuable publication ever issued in the interests of brick construction and will have a far-reaching and practical effect in promoting the clay interests.

The local manufacturer, however, should not confine himself to any one means for promoting his interests, but should adopt any and every practical method for educating the public to the merits of his product, for money thus expended is certain to prove a good investment as a practical aid to selling effort.

It is interesting to note that with the aroused interest in publicity among the manufacturers of clay products throughout the country, the local newspapers are being used extensively by these manufacturers—articles showing the merits of brick construction appearing in the reading columns of a large number of papers throughout the country during the last six months, in addition to a considerable number of attractive and telling advertisements. Among all these newspaper advertisements we have seen none which appears to us more effective than the following, occupying a quarter page of a newspaper published in LaCrosse, Wis. We ask our readers to peruse this carefully and then ask themselves whether or not such an advertisement appearing in a local newspaper would have a beneficial effect in adding to the sales of the concern doing the advertising? Such an advertisement is certainly an evidence of the spirit of the new Building Brick Association of America and the national publicity movement.

**THE VALUE OF BRICK**
used for building material last year exceeded in value all other building materials combined.

Brick has been tried and found to withstand the test of time and the elements better than iron, wood, cement or stone.

No other building material offers such a low cost of maintenance as Brick.

There is literally nothing to do, year after year, to the outside walls of a Brick building.

If you are building for home or investment, why use a material which must be constantly painted, repaired or even replaced.

Why not use Brick? The price makes it the most economical of all materials.

It is all ready for use when you receive it.

Brick will never be cheaper than it is now. It is a good time to build that new building which you are figuring on.

You can get any grade of Brick you want fit for almost any purpose at a price which makes it attractive as a building material.

When you build use Brick.

**NORMAN COULEE BRICK WORKS.**
La Crosse, Wis.

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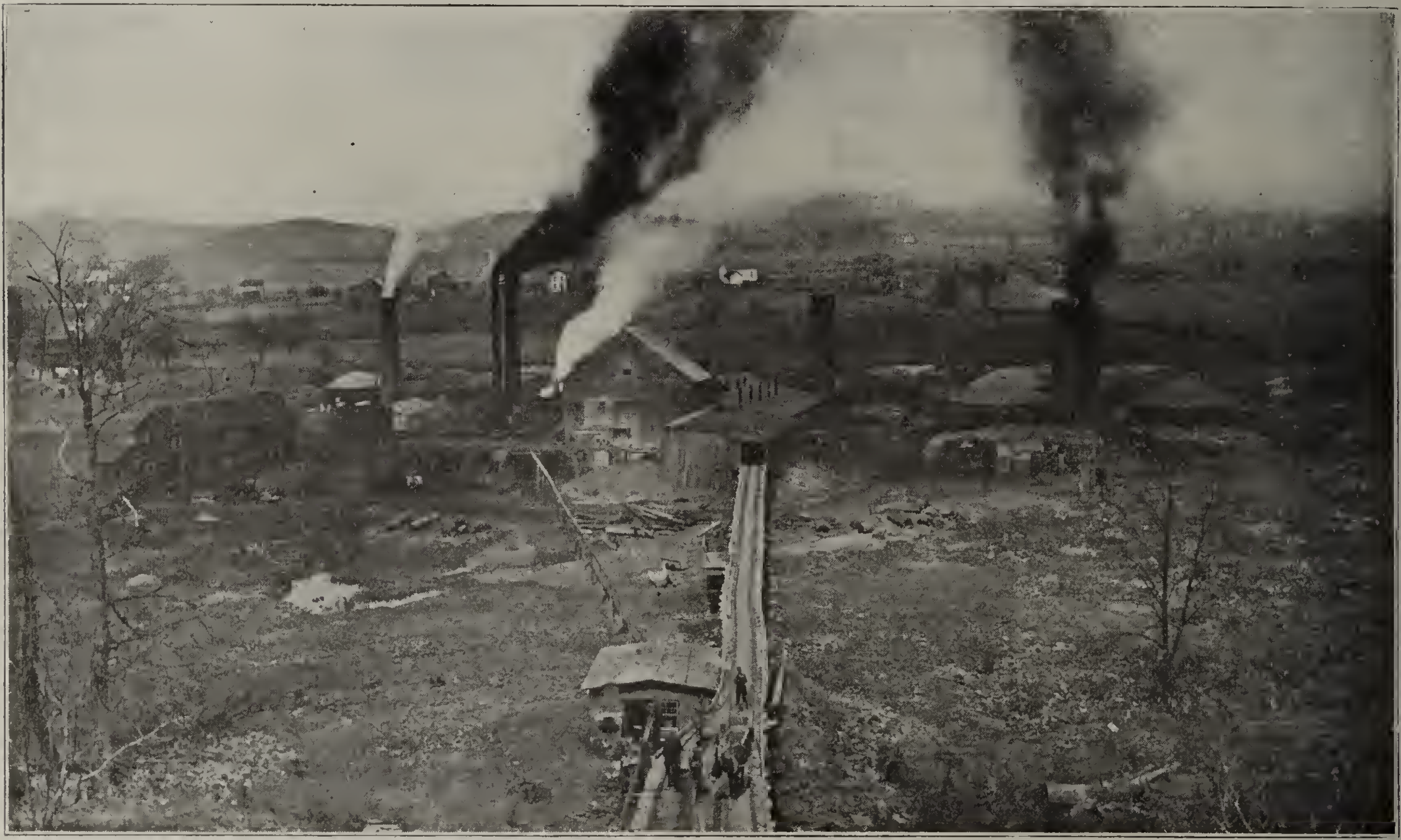
The Moline (Kan.) Brick Co. has been reorganized, with Philip Walker as president; J. H. Houck, secretary, and W. S. Houck, general manager.

Magnificent Plant of the Whitacre Fireproofing Co.



View of the Plant of the Minerva (O.) Brick Co., Showing Method of Mining and Transporting Clay.

Thriving Plant of the Malvern (O.) Brick Co.

# CARROLL COUNTY'S PRIDE

## Some Modern Plants Which Are Bringing Fame as a Clay Center to an Important Section of Ohio

Carroll county, Ohio, is coming to the front as one of the largest clay producing counties in the Buckeye State, in so far as the rougher materials are concerned. On the New Philadelphia Branch of the Cleveland & Pittsburgh Railroad, of the Northwest System of the Pennsylvania here and there will be found brick and fireproofing plants of large capacity. The Whitacre Fireproofing Co., with a capacity of sixty kilns is the largest plant of its character in Carroll county.

Among the other large plants in Carroll county besides the Whitacre works are the following: Waynesburg Brick Co.; Malvern Brick Co.; (owned by the Deckman-Duty Co., of Cleveland, O.) Minerva Brick Co., of Minerva; Magnolia Brick Co., Magnolia, O.; Waynesburg Brick Co., of Waynesburg.

The Magnolia Brick Co., One of the Most Prosperous in Ohio.

The product of these plants is not only shipped throughout Ohio, but a generous trade throughout the United States is favored.

J. J. Whitacre, president of the firm bearing that name was elected to congress at the last November election to represent the Eighteenth Ohio District, which included Carroll, Mahoning, Stark and Columbiana counties, now represented by James Kennedy, (Republican) of Youngstown. Mr. Whitacre is a Democrat, and went into office on the wave that passed over the Buckeye state and carried the Democracy to so many victories.

Mr. Whitacre recently purchased the property of the Pittsburgh-Malvern Brick Co., located about a mile from the fireproofing property, exclusive mention of which was made in "Brick" in December. He is 49 years old.

He has always lived in Stark county, Magnolia being his birthplace. He has been a Cantonian since 1887, when he went there to begin the practice of law. Branching out from the law since then he has become a manufacturer, and is best known in the commercial world as general manager of the Whitacre Fireproofing Co., the largest independent concern of its kind in the country.

The campaign was Whitacre's second venture in politics. Two years ago he made a dash for congress but failed. He never held public office in his life. He made his campaign largely on the tariff issue.

Whitacre worked his way through college, Michigan University. He was graduated from there in 1887, and immediately went to Canton to hang out his shingle. He has three children, a daughter and two sons.

Artistic Setting of the Minerva (O.) Brick Plant.

# The Sawyer Belting Company

## An Immense Factory in Cleveland, where Canvas Belting Is Made for Use in the Clay Industry

After the smoke has cleared away, and the hustle and bustle of the Chicago, Boone and Louisville conventions are now over, there of necessity always remain some impressive features. Next to the exceptional organizations of the brick and clay machinery manufacturers, the selling organization of the Sawyer Belting Co. looms up as being not only energetic, but power and transmission experts of the first water. The perfection of the selling force, and knowledge of the severe conditions which must be met by belting, in brick and clay working plants has been brought about by their sales manager, Mr. H. L. Taite.

The aims of the Sawyer Belting Company are conscientious and well directed in presenting before clay workers, for their consideration, a product exceptionally well adapted for the specific purposes, hard work on belts in plants of this character necessitate.

View of a Portion of the Immense Plant of the Sawyer Belting Co.

The plant of the Sawyer Belting Company, at Cleveland, O., occupies an area of one-hundred and fifty thousand square feet, devoted exclusively to the manufacture of stitched canvas belting, as a specialty.

The company was formed in 1892 by Mr. H. M. Sawyer, noted as a manufacturer of oil clothing. His brand, 'Sawyer Oil Clothing," is known the world over as the acme of the oil clothing business. His experience and knowledge of the actions of oils on cotton fabrics has resulted in development of Sawyer Belting quality as it is known today.

The company, in its incipiency, turned out about six hundred feet of belting per day. The product, at the start, being such an advance in quality over the products of other manufacturers—due, undoubtedly, to Mr. Sawyer's knowledge of oils and their uses on fabrics—was responsible for the gradual increase in the volume of business secured. Succeeding years demanded an increase in factory space and equipment, until all their land had been covered at Cambridge, Massachusetts, where the factory was first started. So January 1st, 1906, the company moved to Cleveland, Ohio, into quarters twice as large, with nearly 100 per cent additional equipment.

The value of the move was immediately appreciated, by virtue of the fact that Cleveland afforded such excellent shipping facilities, as well as—during open season—having the additional advantage of shipping on the Great Lakes. Being more centrally located, the business advanced more rapidly than ever before, until the space again was inadequate, to such an extent that additional buildings and equipment were required. So the fact cannot but be appreciated among clay workers, whose wants have been studied, as a specialty, by the engineering department of The Sawyer Belting Company, that now, instead of turning out six hundred feet, the output is slightly in excess of six miles daily.

The engineering department of the Sawyer Belting Company will be only too glad to cheerfully estimate and plan propositions for clay workers, covering their belting requirements to those writing for such plans.

## EVERY WISH GRATIFIED.

That second-hand engine, pump or machine you want,—that foreman or burner you need—We have them in our classified ad department.

If you don't see what you want, ask for it, in our classified ad columns. It will cost you only a small sum.

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Work on the cement foundations for the plant of the Massachusetts Sand-Lime Brick Co. at West Oxford, Mass., is progressing rapidly. Buildings will soon be started. The roadbed for the spur track has been completed and ties are delivered and ready to lay.

# EVERYBODY PLEASED

## A Few of the Hundreds of Appreciative Letters from Our Readers

I am sure our friends will not accuse us of undue vanity in publishing a few more of the many letters of appreciation we have received.

We have worked hard to give you a good journal and as "we are all children of a larger growth," we still enjoy being told when we have "made good."

We want you to feel that the journal is yours and if you can suggest any improvements, or can send us any items of interest for our departments, we shall be glad to hear from you.

**Mr. Edw. Cummings, superintendent of the Sykesville (Pa.) Clay Product Co.,** writes us a letter of appreciation as follows: "I am pleased to know that Brick and Clay Record have consolidated, as it insures the subscriber that he is getting the benefit of the latest ideas of the most experienced brick men in America and also keeps us in touch with our foreign manufacturers. I read every copy with added interest and I feel that every superintendent of a brick plant should be a subscriber."

**Mr. Ira E. Seidle, superintendent and treasurer of The Lehighton (Pa.) Brick Co.,** says: "Your style of magazine and advertising wins. Enclosed find check for $1, for which send Brick and Clay Record, for twelve months."

**Mr. E. Hurst, of Alberta, Canada,** stated the following, in a recent letter: "I am delighted with your journal Brick and Clay Record. Enclosed find $2 for my yearly subscription."

**Chas. M. Crook, of Youngstown, O.,** writes congratulatory letter: "I have read your consolidated publication with interest and congratulate you on the improvement made and wish you continued success."

**Mr. F. W. Fitzpatrick, consulting architect, Washington, D. C.,** writes congratulatory letter as follows: "Brick is all right and your new consolidation is all right. You are doing bang-up work for the brick industry, and it is one of the best journals that come to my table."

**Mr. James Neavitt, secretary and treasurer of the Flint River Brick Co., Albany, Ga.,** writes: "We are very much pleased with your publication since the consolidation."

**Mr. S. G. Brinkman, of Fords, N. J.,** in a recent letter states: "I like to read Brick and Clay Record and do not want to miss a single number."

**Mr. F. A. Taber, secretary of the Grand Ledge (Mich.) Clay Product Co.,** says: "Your publication is certainly all right for brick manufacturers."

**F. G. Matteson, of the Purington Paving Brick Co.,** writes: "Accept my congratulations on your greater and better magazine."

**H. C. Kleymeyer, of The Standard Brick Mfg. Co., Evansville, Ind.,** says: "I take pleasure in assuring you that we appreciate your journal very much."

**Mr. C. E. Younger, Martinsville, Ind.,** has to say the following: "I am sure the faithful efforts of Brick and Clay Record should be appreciated by all who are interested in clay products. It has been of value to me, and I have found many points of interest in its pages."

**The Kankakee (Ill.) Tile & Brick Co.,** says: "We anticipate nothing spectacular from a rush standpoint in business this spring, still we are pressing toward the mark in connection with our high calling."

**An excerpt from a letter of Mr. J. R. Copeland, of Birmingham, Ala.:** "We congratulate you on your semi-monthly edition. May you receive your share of the patronage of the 'craftsmen,' not only of the north, but especially from us of the south, who look forward with pleasure to the arrival of Brick & Clay Record."

**J. W. Sibley, manager Ogeechee Brick Co., Union Point, Ga.,** in a letter of recent date, has to say the following: "Having received the first copy of 'Brick & ClayRecord,' I have nothing but praises to offer. I think it one of the best journals devoted to the brick and clay industry that is to be had, and in the combination you are now giving us two magazines for the price of one and with both of them improved. May you live long and prosper."

**Prof. T. R. Ernest, of the Spokane, Wash., College,** voices his approval of Brick and Clay Record as follows: "I am very much pleased with the new departure, and I intend to keep my files of the journal complete."

**Mr. V. W. Aikley, of The Aikley Brick & Tile Works, Vinton, Ia.,** writes us: "I am well pleased with the combination and you should have the support of every clay worker in the country.

**Mr. C. S. Sage, president of the Sage Brick Mfg. Co., Greenport, N. Y.,** says: "I enjoy reading your journal very much and trust you will make it as interesting during the year 1911, as in the past. It is well worth any man's dollar for the information contained therein."

**The M. K. Strong Brick Co., Brewton, Ala.,** writes us, saying: "We can't do without Brick & Clay Record. It is invaluable to any brick maker. We expect a prosperous year and will make from two to five million common brick. Brick are in good demand at $6.00 per M f. o. b. cars at factory which sold last summer as low as $3.75."

**In a recent communication, the Granton Brick Mfg. Co., of Union, N. J.,** said: "We congratulate you on the combination of the Brick & Clay Record and wish for you continued success."

**Greathouse Brick & Tile Works, Louisport, Ky.,** state as follows: "Enclosed find $1.00 to pay for one year's subscription to Brick. Brick is all right; each issue worth the price of the subscription for one year. We wish you a prosperous year."

**J. S. Milmesmeier, Ft. Madison, Iowa,** says of Brick & Clay Record: "You surely have a fine journal, which every brick maker should read."

**Mr. George Goulding, secretary of the Streator (Ill.) Paving Brick Co.,** approves of our semi-monthly, as indicated by the following excerpt from a recent communication: "In our opinion the new arrangement is a decided improvement upon the old. The new publication is more substantial and attractive. It is a credit to the trade and meets with our hearty approval. I wish you continued success."

**Mr. D. C. Haeger, president of The D. H. Haeger Estate, Elgin, Ill.,** manufacturers of drain tile products, writes us: "The issues of the Brick and Clay Record certainly meet with my approval, and you should have the support of every clay man, for in an industry as important as ours, it would seem we should soon have a weekly paper, if nothing more than to give us news of new buildings being planned for."

**Mr. Paul Bye, of The Barber Asphalt Paving Co., Des Moines, Ia.,** in a recent communication stated: "I have received your first issue of the combined Brick and Clay Record. I am more than pleased with its general tone and completeness. It is a splendid publication, and one of which you may well be proud. Your realized endeavors to serve the clay working industries should call forth the support and co-operation of everyone in the clay working trade. I wish for a long, successful career to Brick and Clay Record."

**Mr. E. J. Witthoff, of the Marion (O.) Steam Shovel Co.,** writes: "We consider your journal very superior since its consolidation with the Clay Record."

**In a recent letter Mr. A. B. R. Boss, of the Jno. C. Boss Co., Elkhart, Ind.,** states: "I take occasion to say that we have always found your journal highly interesting and look forward to its arrival with pleasure, and with the combination of Brick and Clay Record, find it doubly so, and wish you continued success."

**Ed. J. O'Hair, 918 34 Ave., Seattle, Wash.,** writes us: "I have been receiving your journal in the past and I look for it each month, and I want to thank you kindly for the many good items of interest it contains monthly and now that it comes semi-monthly I am sure it is a move in the right direction. I hope your consolidation with the Clay Record will prove profitable as well as popular, and that you will gain many new subscribers."

**Our good friend Anton Vogt** says: "I am agreeably surprised to note that you have combined the 'Clay Record' with 'Brick' and that you will hereafter publish 'Brick' as a semi-monthly. That's simply grand! Stick to it, publish it hereafter, but not in the hereafter. Here is where we need it. Your efforts to be of service meet with my hearty approval and I assure you that your readers will greatly appreciate your combination. 'Brick' and the 'Clay Record' will make a strong team in the field of the clay industry. 'United you stand; divided you fall.'"

**A manager writes:** "Yes, every company should give their managers a present of a year's subscription to 'Brick and Clay Record,' but the most of them are not built that way."

**The secretary of The Roseville Pottery Co., Zanesville, O., says:** "I am reading your publication as a matter of general information, and appreciate it personally, although so far as our business is concerned, it is not associated with any of the staple products."

**In a recent communication, Mr. G. B. Luckett, secretary-treasurer of the Crawfordsville (Ind.) Shale Brick Co.,** stated: "The writer has been much interested in the consolidation of the Brick & Clay Record and feels confident that the new semi-monthly magazine will prove a decided winner with the brick trade. I trust your efforts may receive the approval their merits justify."

**E. F. Knight, sales manager, Bradford, Pa., Press Brick Co., says:** "We have known of your publication for several years and know that it is one of the bibles of the brick business, and we trust that it will be a new testament."

**The Malakoff Press Brick Co., Fort Worth, Texas:** "We have been subscribers to your magazine for the past two years, and are always pleased to see a copy of it coming in the mail, as we consider we get a great deal of valuable information from the same."

**Mr. G. I. Nelson, of Tualatin, Ore.,** says: "I have been a constant reader of your journal for the past seven years and think it is just a little better than anything else on the market. I wish you every success."

**The Brazos Brick & Drain Tile Works, at Rosenberg, Tex.,** expresses appreciation as follows: "Brick and Clay Record is well worth the money several times over. We find many articles in it that help us along with difficult obstacles we meet with here at our plant as well as a great deal of other interesting reading pertaining to the trade."

**One of the complimentary letters which gladdens ye editor's heart:** "To a brick maker Brick and Clay Record is a valuable work. One copy is well worth the price for one year."

**A friend from St. Louis, Mo.,** writes: "I wish to congratulate you on acquiring another publication and am also glad Brick and Clay Record will come out twice a month, in future. It seemed too bad that such a valuable publication should go into the readers' hands only once a month."

**Mr. Geo. R. Davis, of Kaylor, Pa., says:** "This is my tenth year as a subscriber to your journal, and I would not be without it. Although I am a stationary engineer, I expect sometime to be a brick manufacturer."

**A friend from Texas says:** "Permit me to mention a good word for Brick and Clay Record. I always receive each new issue with much enthusiasm, and I would not be without your journal."

**A friend from New York writes:** "In the many years I hvae been in the brick business I have always been glad to subscribe for such a valuable publication at so low a price."

**Our cheery and jovial friend, J. M. Hoskins, of The Terre Haute (Ind.) Vitrified Paving Brick Co.,** writes us: "I have just received the convention number of 'Brick and Clay Record,' and hasten to assure you that it is a beauty and reflects a great deal of credit, not only on the management, but on your force of artists. You are surely forging to the front with a strictly up-to-date clay products magazine. It gives me a great deal of pleasure, indeed, to extend congratulations."

**Mr. Geo. Videtto, secretary of The American Pulverizer Co., St. Louis, Mo.,** writes us an unusually comprehensive letter of commendation, as follows: "We have highly appreciated the merits of 'Brick and Clay Record' and wish to commend your efforts in the endeavor to further improve its value and usefulness. Already commanding a secure hold upon the confidence, interest and patronage of a vast portion of the clay products industry, as well as the manufacturers of machinery pertaining thereto, the consolidation and semi-monthly issue of 'Brick' with 'Clay Record' serves to enlarge the scope of the enterprise and the combined experience will result in more thoroughly disseminating knowledge of discoveries, scientific treatments and methods to perfect quality as well as to increase quantity of products; of the constant improvement of machinery and the general progress of the third greatest industry of our country."

## MANTEL TILE AND GRATE DEALERS' ASSOCIATION.

A large number of brick and tile manufacturers were represented at the annual meeting of the Mantel, Tile and Grate Dealers' Association, which was held in New York during the week of Feb. 13-18. One of the most interesting exhibits was that of the Trent Tile Co., of Trenton, N. J., which made a special feature of crystal glaze tile work, a new creation in tile art lines.

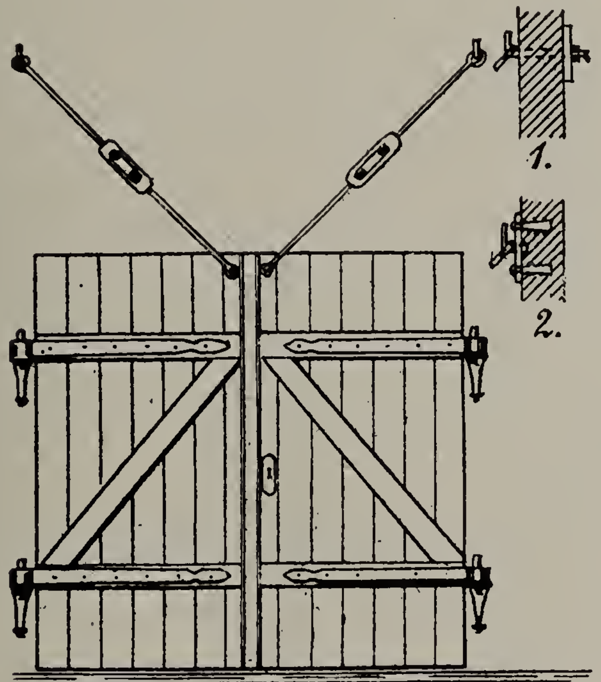
The gathering was one of the most successful the association has so far fostered. The exhibit hall was in one of the ball rooms of the Hotel Astor.

Among the exhibits were displays from the following firms: Manhattan Brass Co., Strobl Pottery Co., Mueller Mosaic Co., American Encaustic Tile Co., Steul & Thuman Co., Rookwood Pottery Co., Boston Brass Andiron Co., Wheatley Pottery, Hilgartner Marble Co., Mantel, Tile & Grate Monthly, C. Pardee Works, Robert Rossman Co., Providential Tile Co., Architectural Tile & Faience Co., Old Bridge Enameled Brick & Tile Co., Broadbent Mantel Co., Grueby Faience Co., Stuhlmiller Mantel Works, Cumberland & Mulder, C. Buchholtz Co., Collins & Thompson, Trent Tile Co., J. B. Ford Co., Adolph Grant & Co., Frank H. Graf Co., Peerless Mfg. Co., S. M. Howes Co.

## USEFUL FOR HEAVY DOORS.

Every one who has to open and shut large doors or solid gates knows the labor involved in these operations, as the whole weight of the door has to be carried by the hinges and unless these are of exceptionally good and massive design, the leverage caused by the width of the door causes it to sag slightly and the weight is thrown on to the man instead of being borne mechanically.

A writer in a contemporary suggests that the device shown, which has been used in a number of cases of troublesome doors with great success. The arrangement is quite simple and consists of a couple of stout rods, each with a shackle so as to enable their length to be accurately adjusted. These rods are fastened to the wall of the building above the doorway by means of staples on their ends and plain hooks on the wall as shown at the side of the illustration. The rods do not interfere in any way with the opening or closing of the door yet they make it far easier to move, as the weight is carried on or in a line with the hinges and is completely taken off the man, who has simply to exert sufficient force to keep the door in motion. For old doors, which have been badly hung, this device is particularly useful, and the ease with which the length of the rods can be adjusted is such that any one who finds the doors work stiffly can insert a bar in the shackles and tighten them slightly.



For Heavy Doors.

## COVERING PULLEYS WITH LEATHER.

First soak 12 ounces of good glue in cold water. Put 4 ounces of boiled oil and 4 ounces of turpentine into the glue-pot, and in this dissolve 3 ounces of resin. When the resin is dissolved, add the glue. The resin and glue should be well stirred while dissolving.

Before applying the leather cover to a pulley have it warm and dry, and scrape off all matter that may have accumulated on its face. Then, with a swab, apply muriatic acid (full strength) to all parts of the face of the pulley. When dry, wipe gently with waste. Cut leather lengthwise of hide, and a little wider than the face of the pulley. Have the cement melted in the glue-pot, apply it across the face of the pulley with a brush for about six or eight inches, lay on the end of leather and rub it down hard with the corner of a piece of wood. Fold back the leather and continue to apply cement until the pulley is covered.

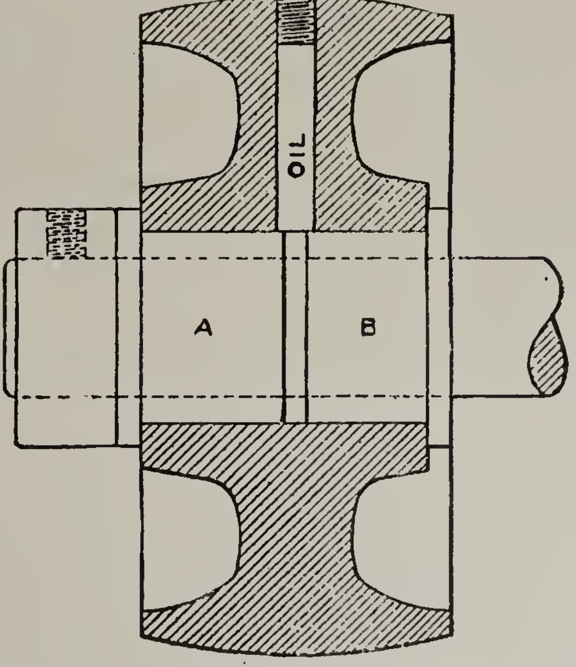
Two thicknesses of leather are used. Make the first thickness a butt joint, and the last a scarf or lap joint of about three or four inches long. Make the laps on the driven pulleys the way they run, and on the drivers the opposite way. Pulleys should be cleaned by holding a piece of coarse sandpaper against them.

## BUSHING LOOSE PULLEYS.

It is the usual practice to make bushings of brass. Times without number, pulley hubs have been cracked through the desire to make the bush tight enough, and the bushing hole reduced in size, making necessary another operation in reaming or scraping the hole to fit shaft. The brass generally used is not of the right character, and the slightest neglect in oiling, starts it on its noisy way.

The accompanying sketch from the "American Machinist" illustrates a method employed for some years which for simplicity and economy in construction and efficiency in operation is far ahead of the tight bushing. It has given complete satisfaction whenever used.

It consists of two flange bushings, A and B, of cast iron, bored and turned a running fit on the shaft, and in the pulley, with oil grooves inside and out, and an oil space in the center. Space for the flanges is obtained by facing the pulley hubs where necessary.



Details of Bushing.

This style of bushing is easier to make, therefore cheaper, and will stand more abuse and neglect than the tight brass bushing.

Wm. H. Shaw has resigned as superintendent of the Grinnell (Ia.) Brick & Tile Co. and will take charge of the erection of a large plant at Staffordsville, Kan.

## RISKS ASSUMED BY SHOVELERS OF CLAY.

In the case of Ritzema vs. Valley City Brick Co., 115 Northwestern Reporter, the supreme court of Michigan says that the defendant obtains its clay from a bank about 200 ft. long and quite high, but how high was not shown. The clay is broken down from this bank into a pit. At the proper distance in the pit, from the foot of the bank is a railroad track. The clay is shoveled into the cars placed upon this track and conveyed to the brick machine. The clay often comes down in quite large chunks. The clay, after being broken, is from 5 to 8 ft. high. The large pieces must be broken up in order to be shoveled into the cars. Four men, called "pickers," use picks to break up these pieces. After the pieces are properly broken the shovelers shovel the clay into the cars.

One day, at almost time to quit work, a shoveler, who had been engaged in the work for about two years, set his shovel against the side of the car towards the bank. He had been throwing pieces of clay into the car with his hands. He started to get his shovel, when a large piece of clay was dislodged without any action on the part of any one, rolled down from a height of about 5 ft., struck his shovel, driving the handle against him, and injuring him so that he died. The piece of clay was estimated to weigh about 200 lb., and was alleged to have been 1½ ft. thick, 3 ft. long, and 3 ft. high. It was daylight and the work was being done in the usual way. Chunks of clay were liable to roll down, and this the man knew. It was the general understanding among the employes that they must look out for each other and themselves. The situation at the time of the accident was the same as it had been every day. The pickers were subject to the call of the shovelers, at any time they considered a piece dangerous or desired to have it picked to pieces for shoveling. At the close of an action brought by the administrator of this man's estate the trial court directed a verdict for the defendant.

The supreme court holds that the instruction was clearly correct. The dangers were obvious. The workmen were perfectly familiar with the fact that these chunks would roll down the bank when undermined, and they needed no superintendent or foreman to inform them of that fact, or to warn them against a danger which they knew as well and perhaps better than any one. It was not the duty of the defendant company to employ a man to watch and inform its workmen when there was danger.

## ASKS INFORMATION.

A brick manufacturer from South Carolina has written asking for advice as follows: "Will some of the readers of Brick and Clay Record give me a remedy for checked and cracked brick over and near the eyes of my brick kiln, burned under the following conditions: I have a Brewer No. 8 machine, hack on pallets about 50 to the pallet, dry in sunshine from 4 to 5 days, while hacked on pallet. Then sent to kiln, hack in the kiln about 34 high. My kiln is the old-fashioned open top kiln, cased with green brick; arches turned in front of the eyes about 18 in. high. The brick are water smoked 3 to 3½ days, and burned about 6 days. I make only common building brick, and lose 10 per cent of the brick on account of their being shattered and broken in process of burning. Can any of the readers of brick suggest a remedy for this loss? If it is in the burning I would like to know the remedy, even if I have to adopt a different system of burning, and would like to get the services of an experienced man to help me out of the trouble. As stated above, I use a No. 8 Brewer and use the stiff-mud process. Would a pug mill in connection with the brick mill make a stronger brick?"

We would be glad if some of our readers can solve the problem, through our columns.

## FOR CHEAPER PRODUCTION.

Conveying machinery is rapidly becoming part of the necessary equipment of all modern clay products plants. Its advanced stage of development makes it adaptable for all conveying operations about a brick plant and its use marks an important step in the economic development of the industry.

A few years ago the handling of the clay throughout the process of brick making was done entirely by hand. The aggressiveness of certain manufacturers, however, and the economic need for more reliable and less expensive methods of production are fast eliminating all unnecessary hand labor. Better machines are being used, better plants are built, better labor employed and the output per man is greatly increased. The expense of cheap labor has proved to be greater than comparative wages would indicate; its unreliability and irregularity are unnecessary expenses and, as is being learned in every industry, the cheapest production is in scientifically arranged plants with the least dependence upon hand labor. As in the matter of digging clay, machinery is cheapening production, so, in the bringing of clay from the bank, in use between the various processes, in the storing and reclaiming of the material, and even in the delivery of the green brick to the kiln, belt conveyors are now effectively reducing the cost of brick.

The operation of belt conveyors is extremely simple and satisfactory. The power required is low, the possibility of breakdowns is small, and the maintenance and depreciation are slight. They occupy small space and are of relatively large capacity. For the handling of material, under all conditions, belt conveyors are coming into popular use more and more.

In designing new plants, the necessary floor space may be greatly reduced; the material going from one operation to another on horizontal or inclined belts, or lifted vertically by means of bucket elevators. In the storage of the material the greatest economy of space is obtained as the clay may be automatically destributed by a movable tripper completely filling the storage bins with no attendance whatever. In reclaiming the stored clay for use, conveyors running under the floor are easily loaded from the pile and delivered in the simplest manner to the machines. There are in fact, practically no problems in the clay industry regarding the handling of the material that have not been economically met by the use of belt conveyors, and the day is not far distant when any plant which does not employ all contrivances for the reduction or elimination of hand labor, cannot survive the competition of the cheaper substitutes for brick.

## TO USE LIQUID FUEL.

The manager of the Fort Pierre, S. Dakota, brick yard, having found burning with coal expensive, has been experimenting with liquid fuel, and on a test of burning a large kiln, finds that he can make a large saving by this change, and can secure just as hard a brick by the use of oil for fuel. A change will be made to the cheaper method.

## A PREVENTATIVE OF BOILER CORROSION.

The use of zinc and tin has been suggested as a means of preventing boiler corrosion, according to the following method: An iron rod coated with tin and supporting zinc rings is tightly bolted to the inside of the boiler shell, the zinc being replaced as corroded. The tin by its over-voltage effect is always kept clean and consequently insures the good electrical contact necessary.

## MEETING OF THE IOWA STATE DRAINAGE ASSOCIATION AT MASON CITY, IOWA, FEBRUARY 14 AND 15, 1911.

It is but a few years ago that Prof. W. H. Stevenson, of Ames, Iowa, professor of agronomy in the Iowa State College of Agriculture, conceived the idea of forming the Iowa State Drainage Association and called its first meeting.

The membership of this association is made up chiefly of drainage engineers, drainage contractors, county supervisors, and manufacturers of drain tile. Anyone interested, as a producer or user or in fact in any way interested in the subject of tile drainage, is eligible to membership, however.

The 1911 meeting was held at Mason City, Iowa, on Feb. 14th and 15th. A fairly good attendance, though not quite up to that of last year, was recorded. There were in the neighborhood of one hundred registered.

The meeting was called to order promptly Tuesday at 10 a. m. by Professor Stevenson, who has since the organization acted as its secretary. In the absence of the president, Henry Young, of Manson, Ia., Mr. Seth Dean of Woodbine, Ia., was called to preside as temporary chairman, and proved himself an efficient officer during the first day's session.

The association was addressed by Mr. Heath, president of the local commercial club, who extended a "Welcome to Our City" in a pleasing manner and the promise to "be good" was given by acting President Seth Dean and following the report of the secretary and treasurer, the program was taken up, the first paper being "The History of Drainage in the United States," by George M. Thompson, of Grand Junction, Iowa. Mr. Thompson was not present, and his paper was read by a member of the association. Mr. Thompson is an able and experienced drainage engineer and no doubt his presence would have tended to a more thorough discussion of the subject, but some little discussion followed this paper on the subject of gumbo soils and their successful handling in drainage operations, this being a very interesting subdrainage operations. This being a very interesting subject, particularly to the southern Iowa field.

Some discussion of the advantages and disadvantages of the catch basin, and whether or not these basins increased the capacity of tile, or rather reduced the size requirements, developed quite a diversified opinion, ranging from statements of belief that the required tile size could be reduced one-tenth to one-half, when catch basins were installed.

On adjournment of the first session, visiting members were taken in automobiles to the plants of the Mason City Brick & Tile Co., The American Brick & Tile Co., The North Iowa Brick & Tile Co., and the Farmers Cooperative Brick & Tile Co., and to the large cement plant.

The afternoon session Tuesday opened with appointment of committees, which were as follows:

Resolutions: W. H. Killpack, J. B. Davidson, E. G. Alborn; nominations: J. M. Wells, Mr. Jackson and P. H. Atwood; legislation: F. O. Nelson, J. W. Hoffman, J. H. Pettibone, C. B. Platt, F. R. Lyford; publicity; J. A. King, C. B. Platt, Professor Davidson, Ames.

The first paper was a report by Secretary Stevenson on the work of the State Drainage, Waterways and Conservation Commission, with reference to drainage, and following an explanation of the forming of this commission and the limitations under which it worked, discussion of the recommendations of the Commission to the Legislature was invited.

Some little opposition to recommendation by the association developed on the floor, coming largely from those who were convinced that they saw in the appointment of a water commissioner, or state drainage engineer, whose advice was to be taken as a final basis for action, a curtailment of the authority of boards of supervisors. As is generally the case in conventions, the convictions of the majority did not perhaps appear and in this instance, while the vote to concur in the recommendations contained in the report tabled one of the sections, many did not vote either way and conversation, particularly with the engineers, developed that they were fully in accord with the recommendations.

Mr. James A. King, of Charles City, Iowa, presented the last paper on the program for the afternoon session, handling his subject, "Drainage Conditions and Problems in the Iowa Drift Area" in a most interesting and able manner, bringing out points of no little value, more particularly with reference to private drainage practice and closing with a strong recommendation that the association form a publicity committee, intended more especially to secure the co-operation of the agricultural press, in the publishing of papers which the committee might be able to secure from engineers, farmers and practical drainage men of the state.

The evening session was interesting and brought out practically the full visiting membership. It was devoted to reports of standing committees. These reports were presented in the form of interesting and valuable papers. Dean A. Marston of the engineering department, Ames State College, presented a set of standard specifications for drain tile, covering the points of a method for determining the strength of drain tile and absorption test methods.

In his paper on "Rules and Regulations for the Construction and Maintenance of Ditches and Drains," Mr. Jacob A. Harman of Peoria, Ill., again touched the tender spot, contained in the recommendations of the Conservation Commission, and the adoption of his report brought out considerable opposition, which was finally overcome in the adoption of the report.

In the absence of the Hon. John Hammill of Britt, Iowa, Mr. G. E. Wheat, of Emmetsburg, Iowa, gave the report of the Committee on Financing Drainage Propositions and the Committee on Legislation.

Mr. Wheat has spent a great deal of time and effort in securing data, which he used in this report and from which he made an interesting talk. He had secured figures from thirty-one counties of the state, showing the cost of the work up to date to approximate closely to $16,000,000.

He called the attention of his listeners to the fact that these district ditches, costing about $10 per acre, did not drain the lands of the tributary farmer, but simply gave him an outlet from which he could derive a benefit, only by spending in the neighborhood of $15 more per acre in underdraining his farm properly. That it was therefore most important that the main ditch work be done in the most approved economical manner, that the farmer could afford to undertake the drainage of his farm with the least possible delay.

The morning session on Wednesday opened with papers by Hon. W. H. Killpack of Council Bluffs, and Hon. J. M. Blake of Webster City, on "Legal Methods of Assessing Railroad Property for Ditch Benefits" and "Benefit Assessments of Railroads." These were able papers and of interest; they brought out the fact that the railroads met conditions and drove as good bargains as possible, through having men of specialized ability in the field, to meet and combat any and all arguments offered in support of the contention that they should pay for benefits, other than those coming from improved land or roadbed conditions strictly within their right of way limits.

"Drainage by Pumping" by Jacob A. Harman, of the Harman Engineering Co., Peoria, Ill., was read by John J. Harman.

Following this paper the convention received invitations from the cities of Burlington and Fort Dodge, to hold their next convention with them. It has been the custom to leave the selection of place of meeting with the secretary and president, but in this instance this custom was diverged from and the invitation of Burlington was accepted.

The meeting closed with the afternoon's session in interesting discussions, reports of committees and election of officers.

The nominating committee presented the names of Hon. H. M. Sparboe, o,f Webster City, for president, and Prof. W. H. Stevenson, of Ames, for secretary.

The meeting was important, instructive and highly successful and reflected great credit on the ability of its presiding and executive officers.

President Young of Manson, Iowa, was delayed at his home and did not arrive until the second day. His address was able and of interest to all concerned in the tiling industry.

## TO TILE COASTLANDS.

A great many of the coast counties of Texas have decided to tile drain their lowlands. The land is rich, but on account of the extreme swampiness has been unused so far. There is a great opportunity for tile makers in the superior clays of O'Quinn, Texas, and the localities thereabout.

## PROSPEROUS IOWA TILE CO.

The Algona, Iowa, Brick Tile Company held its annual meeting recently, at which time all old officers were reelected. The company had a very prosperous year, declaring a 10 per cent dividend, besides paying for a new dryer, which was installed. They report everything in stock sold and many orders booked for the spring season.

## TILE INDUSTRY IS GROWING.

That there was more drain tile manufactured by the plants in northwestern Ohio during 1909 than during any previous year, and that prospects at present indicate another successful year in this business, was the declaration made by J. D. Rumsey, secretary of the Northwestern Tile Manufacturers' Association at its recent meeting at Toledo, O.

## THE FARMER'S REFLECTION.

The following "jingle" was sent to us by Mr. P. P. Elliott, of the Chippewa Shale Brick Co., Chippewa Lake, O.:

Over the hills to the Poor Farm they've brought me here to die,
But now as I look my life over, I can tell you the reason why;
I who was honest and sober and never did any one harm,
Worked live a slave, back yonder, on that quarter section farm;
Year after year I toiled, plowed, planted and sowed,
But just kept getting in deeper, till the farm wouldn't pay what I owed.

My neighbors around me all prospered, their wheat and corn grew so rank;
In any kind of season they always had money to bank;
The drouth that withered my crops to naught, seemed to help my neighbors' along,
And the floods that washed my corn away, only seemed to make theirs strong.
I tell you I got discouraged, for I worked with all my might,
As all my neighbors will tell you (if I was a little tight).

I couldn't see the advantage in making ditches all around,
Working winter and summer, burying things in the ground;
Still my neighbors kept at it, insisting that it paid
Dollars to dimes invested for every rod that they laid.
I'd like to try the farm over again, and I'll bet I'd be there with a smile,
Had I mortgaged the homestead to start on, and expended the money for tile.

—By Allen P. Rice.

## TO RECLAIM BARREN LAND.

The Tullahoma, Tennessee, brick yards have been sold to R. H. Nabring of Upland, Ind. The new owner expects to enlarge the plant and install a new tile making department.

The people of that district have arrived at the conclusion that the barren lands of this mountain plateau could be made rich and fertile by proper drainage. Scientific men have examined the conditions there and have stated that tiling placed under the land to properly drain it would cause the soil to be very rich and productive. The company expect to produce tile cheap enough to be in reach of all and thus make the desert bloom as the rose.

## IOWA TILE NOTES.

Fifty per cent capacity will be added to the Springdale plant of the Sioux City Brick & Tile Co. The company now turns out 30,000 brick a day in this plant. Fifteen additional laborers will be employed as soon as alterations in the plant are completed.

C. E. Fleming has acquired a controlling interest in the Tama (Iowa) Brick & Tile Works. The company was incorporated a year ago with capital stock of $20,000. The plant has been put upon a splendid working basis.

Mr. A. O. Anderson, mining and civil engineer, of Lake City, Iowa, has been placed in charge of the Iowa engineering experiment station at Ames, Iowa. A 20,000-lb. testing machine for testing tile, brick, sewer pipe, concrete beams, etc., has recently been installed at this institution. Mr. Anderson will also devote a limited amount of time to private practice as an expert in drainage.

# THE PAVING BRICK INDUSTRY

## PRAISE BRICK ROADBED AT INDIANAPOLIS.

Automobile racing drivers never agree on the material that makes the best roadbed. In this country there are tracks of dirt, of concrete, of wood and of brick. Different drivers favor different kinds of surfaces over which to speed and frequently state their preference in no uncertain terms. For instance, Ralph De Palma likes the board motor drive at Los Angeles; George H. Robertson used to rave about the Atlanta track's concrete roadbed; Bob Burman likes the brick raceway at Indianapolis, and Barney Oldfield showed a fondness for dirt tracks.

Approaching the subject scientifically, it narrows down to which type shows the smallest coefficient of friction between tires and roadbed. For a time the board surface at Los Angeles was believed to permit the fastest speed. Many drivers have come to favor Indianapolis. Tests have been conducted at Indianapolis that smoothed the roadbed greatly. Cars were sent around the course, pounding and smoothing it. The surface became so almost wooden in its smoothness than the speedway management announced that it had a perfect track. Among the auto racing men who went to Indianapolis to investigate was Dr. Warren, manager of the Buick teams. He has this to say of the track:

"I used to think that the brick track was hard on tires and that years of wear would not improve it, but I must say now that the surface appears to be entirely different from what it was even last summer at the July race meeting. It was better than at first then, but now I think there is not a superior surface in the country.

"The coarse surface of the cement coating has been worn down so that the filler merely serves to close the small apertures in and between the brick. It renders the track, I believe, practically skid proof and looks as though there would not be much more tire trouble. It would not surprise me if some of the cars go through the big 500-mile race next May with one tire change at the most.

"Of course any surface, even dirt, wears out the tires, but I think this even brick surface will be easier on tires now than almost any other material which could be used."

## GOOD ROADS IN MARYLAND.

It is said that during the year 1910, Maryland had more modern road work under way than any other state of the Union except New York, and more than New York even, in proportion to area, population and wealth. Good roads are a sure indication of a prosperous state.

From 1909, there were carried into 1910, 61 unfinished contracts aggregating $1,488,000. During 1910, 67 contracts or arrangements were made, covering $2,347,500 worth of work under construction during 1910.

To January, 1911, there have been accepted as completed 86 miles of this work, having a total cost of $885,700. It is estimated that of the $2,950,000 worth of work outstanding, 35 per cent is now done.

In this good work, brick had its share of the "plums," and 135,000 square yards of vitrified brick pavement are included in the contracts now under way.

## EXPERIMENTING WITH VITRIFIED BRICK.

Two blocks of vitrified brick pavement have been laid on Second St., from Broadway to Webster St., at Oakland, Cal., during the past year. As it was impossible to secure a suitable brick produced by brick manufacturers in the State of California, the brick used were shipped from Seattle. These brick were laid upon a six-inch hydraulic concrete foundation and sand cushion; were thoroughly grouted with a one-to-one filler, and expansion joints installed parallel to the curb line and also at right angles at regular intervals. Streets built of this same class of brick have given excellent service in the city of Seattle with but very slight maintenance cost. The comparison between the wear on these two blocks of brick roadway, also upon the basalt block street adjoining, will be noted with interest, and comparisons made with the new asphalt streets contiguous. It is the intention of the street department to keep accurate account of the maintenance costs upon these streets for future reference. We feel safe in saying the brick pavement will cost less and be in existence long after the others have been worn out and replaced.

## METROPOLITAN TO ENLARGE PLANT.

The officers of the Metropolitan Paving Brick Co., of Canton, O., have taken out new incorporation papers in Ohio for the Moberly Paving Brick Co., a branch plant located at Moberly, Mo., and increased the capital stock from $125,000 to $300,000.

It is said the increased capital stock is to take care of extensive improvements and future development of the company.

The incorporation papers were taken from Missouri to Ohio because most of the stockholders live in that state, it is announced. The incorporators in the Moberly plant are: C. W. Keplinger, A. P. Maurer, James G. Barbour, Austin Lynch and Urban A. Wernet.

## EXCELLENT PAVERS FROM TERRE HAUTE.

Of the thirteen cars unloaded at Princeton, Ind., for paving the streets, only two brick were found broken. The quality of the brick is said to be excellent, and were furnished by the Terre Haute Vitrified Brick Company.

## HOLDS ANNUAL MEETING.

After a most successful year, the Saginaw (Mich.) Paving Brick Co. has shut down for the season. The mines and plant will be put into active operation again as soon as the weather permits, the prospects for 1911 business being excellent. During the year just closed the company turned out and disposed of 6,000,000 brick.

At the annual meeting of the company the following officers were re-elected: President and manager, John H. Qualmann; vice-president, George W. Weadock; secretary-treasurer, Jas. M. Sleeth.

## NEW PAVING CORPORATION.

The Moberly Paving Brick Co. has been incorporated with a capital stock of $300,000, at Canton, O. The incorporators are C. W. Keplinger and others.

## SPRINGFIELD, ILL. IS CENTER OF BIG INDUSTRY BECAUSE OF EXCELLENCE OF CLAY.

It is said, if all the brick make in Springfield during the past year were placed end to end, they would reach from Chicago to St. Louis, or from Springfield to Kansas City.

Few citizens realize how great the brick industry in Springfield is. Over 22,000,000 brick were burnt there during the past year. The Springfield Paving Brick Co. alone, put on the market about 18,000,000 during the year. They sold for about $155,000. The Lincoln Park Brick Yards manufactured 3,000,000 brick worth in all about $22,500. The Underwood Brick Yard, although not working the entire year, burned over 500,000 brick, while the Dawson and the Bartleme brick yards produced as many more.

### Clay Here is Good.

The clay in the vicinity of Springfield, which consists of two kinds, known as shale and surface clay, is especially adapted to brick making. E. L. Snodgrass, superintendent of the Lincoln Park brick yard, says of the clay: "In portions of Sangamon county, especially near Springfield, the clay is excellent for brick making. I think we make as good brick in our yards as they do any place in the United States.

At the Springfield Paving Brick Co.'s yards, about 150 men are employed in the manufacture of brick, the average output for the day being between 50,000 and 70,000 brick. Dr. A. L. Converse, president of the Springfield Paving Brick Co.. in speaking of his brick said: "In quality brick here will equal any brick made.

"Our specialty is paving brick, although we do make a great deal for building purposes. We export about half of our output."

### Mud Shale Used.

The Springfield Paving Brick Co. in the manufacture of their brick use stiff-mud shale. This clay is found mostly near timber and rough land. Dr. Converse expects the brick business to be as good for the coming year as it was in 1910, if not better.

The Lincoln Park Brick Co. has fifteen men employed at the yards north of the city. This company manufactures the dry pressed brick used for building purposes, and sells the entire output in Springfield. The company has just delivered to the Elevator Milling Co., for the erection of an addition to their milling plant, 259,000 brick.

### Process Used.

"There are two kinds of clay in this vicinity, the shale and the surface clay," E. L. Snodgrass said.

"The shale clay is found in varying colors, mostly of a bluish tint while the surface clay is yellowish. The clay dug in our yards has a reddish tint. As it is easily worked and burns hard it is especially adapted for brick making."

At the Lincoln park brick yards, the clay is first gathered by means of a drum, which rests upon wheels and which can be moved from one place to another. The clay is then dumped into sheds, where it is to be dried and where it remains sometimes for almost a year. After the clay has been thoroughly dried, it is placed on an elevator and taken to a machine, where it goes through a crushing process. Afterwards it is pressed and molded into shape.

## LEAVES CLAY BUSINESS.

Mr. W. S. Purington, well known throughout the clay world, through his connection for many years with the Purington Paving Brick Co., of Galesburg, Ill., has severed his connection with that company and cast his lot with the Enamel Concrete Co., of Des Moines, Ia., of which company he has been made vice-president.

## NEW PRESIDENT OF THE N. P. B. M. A.

Every paving brick man in the country is well pleased with the selection of Mr. Chas. J. Deckman of Cleveland, Ohio, as the new president of the National Paving Brick Manufacturers' Association. Mr. Deckman was elected unanimously to that position at the annual meeting of the organization in Louisville the first week of February. It is very fitting that a Cleveland man should be selected this year for this position, in view of the fact that the National headquarters of the association have been removed to that city.

Mr. Deckman is president of the Deckman-Duty Co., one of the largest and most important manufacturers of paving brick in the country. This company operates a number of modern plants in Ohio, and their paving blocks are of high quality.

Chas. J. Deckman, Pres. N. P. B. M. A.

Mr. Deckman has been very prominent in the affairs of the National Association, and in all matters relating to paving interests, for many years.

## HOLDS ANNUAL MEETING.

After a most successful year, the Saginaw Paving Brick Co. has shut down for the season. The mines and plant will be put into active operation again as soon as the weather permits, the prospects for 1911 business being excellent. During the year just closed the company turned out and disposed of 6,000,000 brick.

At the annual meeting of the company, held at the offices of the secretary-treasurer, in the Bearinger building, the following officers were re-elected: President and manager, John H. Qualmann; vice-president, George W. Weadock; secretary-treasurer, Jas. M. Sleeth.

# SEWER PIPE NEWS

## ANNUAL STATEMENT OF THE AMERICAN SEWER PIPE CO.

The report of the American Sewer Pipe Co. for the year ended Dec. 31, 1910, shows net earnings of $150,315, less interest on bonds and bills payable $98,389, surplus for year $51,926. No statement of earnings was made last year, so no comparison can be given.

During 1910, however, there was spent $170,000 for maintenance and about $32,000 for new improvements. The capacity of the large plant at Brazil, Ind., is being increased; in fact, it is being doubled in order that the demand of their growing Canadian trade may be promptly met. Another of their plants is being remodeled and transformed into a face brick plant.

At Lisbon, O., the plant which has been idle for a considerable time has resumed operations, but not until after many improvements to the property were completed. Two new kilns have been completed and new bottoms have been built in all the old kilns.

President George R. Hill states: "We hope that all these improvements can be made without the necessity of securing additional capital." The profits for the year were as follows:

| | | | |
|---|---|---|---|
| ASSETS. | | | |
| Cost of properties, including improvements to December 31, 1909 | | $9,476,527.78 | |
| Improvements and real estate purchased during 1910 | | 32,327.46 | |
| | | $9,508,855.24 | |
| Less reserve for depreciation and retirement of capital stock | | 779,105.33 | |
| | | | $8,729,749.91 |
| CURRENT ASSETS. | | | |
| Inventory of merchandise and supplies on hand | | | 728,138.91 |
| Bills and accounts receivable | | $381.324.82 | |
| Less reserve for doubtful accounts | | 10,000.00 | |
| | | | 371,324.82 |
| Cash | | | 93,548.44 |
| Deferred charges to operation | | | 6,442.62 |
| | | | $9,929,204.70 |
| LIABILITIES. | | | |
| Capital stock, authorized and issued | | | $7,000,000.00 |
| First mortgage 6 per cent sinking fund gold bonds, authorized | | $2,500,000.00 | |
| Less redeemed and cancelled | $766,500.00 | | |
| In treasury and deposited as as collateral to bills payable | 415,500.00 | | |
| | | 1,182,000.00 | |
| | | | 1,318,000.00 |
| CURRENT LIABILITIES. | | | |
| Accounts and bills payable | | $ 412,788.51 | |
| Wages accrued (since paid) | | 30,749.40 | |
| Taxes accrued (but not due) | | 9,120.19 | |
| Bond interest accrued (but not due) | | 26,440.00 | |
| | | | 479,098.10 |
| Surplus—Balance December 31, 1909 | | $1,080,180.97 | |
| Profit for year ending December 31, 1910 | $150,314.90 | | |
| Less interest on bonds and bills payable | 98,389.27 | | |
| Net profit | | 51,925.63 | |
| | | | 1,132,106.60 |
| | | | $9,929,204.70 |

The American Sewer Pipe Co. being one of the largest and most important in the country, the report is of interest to the industry, showing the possibilities in the business when proper management, system and economy are used in the manufacturing as well as the selling end of the business.

The company has dismantled its Markle plant on the Ohio River near Toronto, O., and has shipped all the machinery to the plant at Brazil, Ind. The buildings are being razed, and within a short time the site of the former plant will be merely a memory to the residents of that locality.

The work of constructing the new addition to the American Sewer Pipe plant north of Brazil, Ind., which has been delayed by bad weather, has been resumed, and unless the weather prevents work will be continued until the big plant is completed. When the plant is completed the company will employ a much larger force of men and will produce an enormous amount of sewer pipe to supply the large trade which the company has established throughout the country.

An important change in the management of the East End plant, at East Liverpool, is announced, George Freeman, of Toronto, general manager of the plant and one of the best known sewer experts in this section of the country, resigning after 11 years of service. His successor has not yet been selected.

## PRICES SHOULD BE RAISED.

From all reports, conditions in the sewer pipe industry are in a rather unusual state at present.

The demand has been good, as evidenced by the fact that very little surplus stock was left over from last year at any of the plants. The remarkable fact being that in face of the great demand, there has been a decline in prices, which it is hoped and believed have reached the bottom and that the reaction will be quick and lasting.

It would seem time for a united effort to establish and maintain a scale of prices, showing a fair profit to the manufacturer, for there certainly is little to be gained by slashing prices, merely to get the business and then running at a loss. It would seem a much better plan to stand together resolved "to live and let live."

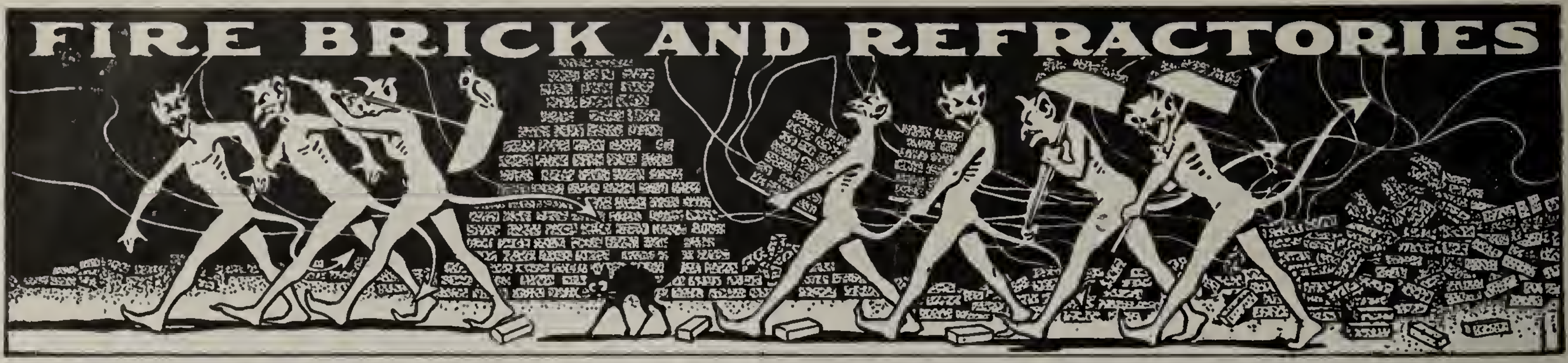
## PLANT CLOSES FOR REPAIRS.

The plant of the American Sewer Pipe Company, located east of Lisbon, Ohio, has been closed down for repairs which will take about 60 days. It is the annual custom of the company to close its plant for repairs. The kilns will all be overhauled and two new ones will be constructed. Extensive repairs will also be made on the clay working machinery. About 75 men will be employed at the plant when it is again placed in commission.

## SEWER AND WATER PIPE IN SAME TRENCH.

The town of Mt. Jackson, Va., has completed an up-to-date water and sewer system. With a natural drainage the town was adapted to an easy disposal of its sewage. This pipe was laid in the same trench with the water line, and the entire work was completed at a cost of a little more than $12,000.

# FIRE BRICK AND REFRACTORIES



## NATIONAL REFRACTORIES CO. PURCHASES PLANT.

In a recent letetr Mr. W. H. Hill, president of the National Refractories Co., Apollo, Pa., gives us the following information:

"December first we secured by purchase all of the capital stock and holdings of the Apollo Fire Brick Co., and in addition thereto purchased all the adjoining properties.

"It is our intention to very materially enlarge the present works and anticipate having in the very near future a capacity of 75,000 high grade silica brick a day.

"We use natural gas as a fuel, having the advantage of owning our own fuel. We have two splendid gas wells on the property and an unlimited territory for drilling new wells if necessary.

"This company is managed by practical brick men, who have been in actual service for seventeen years."

## SPOKANE FIRE BRICK COMPANY.

Though still an "infant" industry, the Spokane Asbestos Fire Brick Company expects to outgrow its swaddling clothes during the present year, and is now making arrangements for the erection of a $10,000 plant. This will give employment to 30 people and will be completed early in the spring.

During the last year the company has been devoting most of its attention to bringing its products before the people. A small plant, giving employment to nine men, is now in operation at 01408 Cannon street, and this will be materially enlarged in the near future.

The company is now manufacturing fireproof brick, asbestos pipe and boiler covering and asbestos plaster.

The mines of the company are located at Kamiah, Idaho, and the raw material is shipped to Spokane, where it is made into the finished product. The manufacture of this fireproof brick is said to be a Spokane invention, and the cost of the brick is about the same as that of brick which is shipped in from other points. The market outlook at the present time is said to be promising. The office of the company, at S175 Wall street, is in charge of H. M. Robertson.

## CHANGES IN FIRE BRICK CIRCLES.

Lewis N. Rancke, formerly manager of the Baltimore Retort & Fire Brick Co., Baltimore, Md., has become associated with the engineering department of the Laclede-Christy Clay Products Company, St. Louis, Mo.

C. A. Byers, Philadelphia, Pa., has assumed the management of the Baltimore Retort & Fire Brick Company, Baltimore, Md. He was associated some years ago with the Cyrns Borgner Company, Philadelphia, manufacturer of fire brick and clay retorts, and is a practical gas engineer.

## IMPROVE PLANTS.

The Toronto (O.) Fire Clay Company will increase its output of face brick to 100,000 per day. F. P. Cuthbert of Philadelphia will have charge of the new office in Pittsburg and William McCrady will be superitnendent at the plant at Ekeyville.

## KENTUCKY FIRE BRICK CO.

The Kentucky Fire Brick Co., with works located at Haldeman, Ky., and general office at Portsmouth, O., is producing a very nice quality of face brick. These brick are made in both smooth and rough effects. The smooth brick includes a variety of shades from a practically pure white brick running through the darker shades to gun metal. In the rough effects there are buff, golden and brown with very rich color effects.

The Kentucky Company has a strictly modern plant, devoted largely to the manufacture of high grade fire brick, which are sold principally to steel trade of the south and west, and face brick, with a capacity of 13,000,000 per year. The company reports business very good, having plenty of orders and the plant is now running to the full limit of its capacity.

The officers of the company are: J. B. Hammond, president; L. L. Haldeman, secretary-treasurer, and Henry K. Leighow, general manager.

## BUYS LAND.

Mr. George C. Braden has sold to the Niles Fire Brick Co. the McKee farm in Weathersfield, O., 38 acres for $5,000. It was reported sometime ago that the company was planning to erect coking ovens in that locality.

## INCREASES CAPACITY.

American Refractories Co. enlarges its Joliet plant, adding new kilns, and increasing the capacity about 30 per cent.

## FIRE BRICK COMPANY.

At the annual meeting of stockholders of the Savage Mountain Fire Brick Company, Frostburg, Md., the following officers were elected Chas. C. Gorsuch, president; Jno. A. Caldwell, vice-president and treasurer; H. C. Gorsuch, secretary. Mr. John Richardson, for many years connected with this company and the Clearfield (Penn.) Fire Brick Co., died recently at his home, Sewickeley, Pa.

## WILL MAKE EXTENSIVE IMPROVEMENTS.

At the annual meetings of the Portage Silica Co. and the Trumbull Brick Co., Youngstown, O., the following officers and directors were elected for both companies: J. G. Butler, Jr., president; James B. Chambers, vice-president; H. H. Hoffmaster, treasurer; E. E. Klooz, secretary and general manager; John A. Kling, of Cleveland, and Henry A. Butler. The number of directors was reduced from nine to six and Mr. Chambers succeeds C. M. Crooks as vice-president.

The companies plan extensive improvements during the coming year to increase the capacities of the plants. The Trumbull Brick Co. will install an improved grinding machine and the Portage Silica Co. is making changes which are expected to double its tonnage output during the ensuing year.

### THE McARTHUR BRICK CO.

Bronze and green mission brick are being featured by the McArthur (O.) Brick Co., and it is this class of brick that has proven to be one of the big leaders in the brick trade during the last year.

The McArthur plant is located on the Hocking Valley Railroad, and at McArthur in Vinton Co., not far from the Ohio river, with Gallipolis as a river shipping point. The country about the plant is rather hilly and rolling, and the company owns 400 acres of shale and fire clays, on which the plant is situated.

About 35 ft. of the shale formation is now being worked, a steam shovel being used for this purpose. The clay is dropped into side dump cars and dropped to the plant by gravity. A Bucyrus 45-ton shovel has been in use at this plant for years. The clay is found between the number four and five coal veins, and it is the Hocking Valley that is filled with the best veins of coal to be found. The clays are rather dark in texture.

In preparing the clays, two 9-foot Stevenson dry pans are used. These have a capacity of 300 tons per day. Bonnott piano-wire screens are also used. The pug mill is of the Bonnott pattern, having a length of 12 ft. The clay is molded with the stiff-mud process, a Freese cutting machine, being used, cutting 22 brick at a turn. Two men are employed here. There are 160 Atlas drier cars in use; each having a capacity of 600 brick. A Rogers waste-heat drier in use here has been found to give excellent results. This drier is built of brick and has a concrete roof. It is 85 ft. long, contains 10 tracks holding 120 cars, and 60,000 brick are dried every 24 hours.

The plant has eighteen 28-ft. kilns, there being eight fire boxes in each kiln. Kilns are set 28 high, and coal is used for firing,—about 30 tons of coal being required for each kiln fired. The floors of the kilns are open.

For power, one 260-h. p. Buckeye engine is used. There are two Borger Bros.' boilers of 150 h. p. capacity, and these are operated at a pressure of 120 lbs.

In all, there are ten shades of brick made at this plant, and all without artificial coloring. Standard sizes of facing are made, although special shapes are made when specified. This is one of the first plants in the country to make a rough-faced product. The firm started business in 1905 and the capacity was increased two years later. Operations continue eleven months in the year and the firm has been one of the most successful ever established in the Hocking Valley. Recently new yards were built and retaining walls were erected along the Hocking Valley Railroad sidings.

Officers of the company are: President, H. S. Hamilton; vice-president, Dan McKeever; secretary, O. F. Pilcher; general manager, L. W. Sprague; treasurer, A. Will,

Plant of the McArthur Brick Co.

### TO MAKE STIFF-MUD BRICK.

The Redding Lime & Brick Co. owns a very valuable deposit of clay at Redding, Cal. Heretofore, however, only soft-mud brick have been made from the clays in that section, and it is stated that the cost of manufacture has been so great that competition did not permit selling of this product at profitable prices. The Redding Lime & Brick Co. is about to establish a stiff-mud plant at that point, however, and has arranged for an equipment of machinery with the American Clay Machy. Co., Bucyrus, O. The equipment will include an auger machine of 50,000 daily capacity. They will also install the Penfield brick setting system, and it is expected that through this modern equipment, brick will be produced at a price so low that it will be possible to manufacture at a profit and yet undersell all competition, including wood and cement.

### RECOVERED FROM FIRE LOSS.

The plant of the M. J. Lee Brick & Tile Co., Paola, Kan., was destroyed by fire in August, but the company is now again ready to operate, having rebuilt the plant on a larger scale so that at the present time it has a capacity of 50,000 brick daily or the equivalent in tile. This company is fortunate in its apparently inexhaustible supply of material, its shale pit being sufficient to supply the plant for a hundred years to come. The vein is 100 ft. deep.

This plant makes a high grade of soft mud and dry pressed brick and also drain tile from 3 to 15 in. in diameter. It is equipped with an Adrian machine, a Boyd press and a Brewer and a Benson cutter, also an Eagle dry pan. Both waste kiln heat and steam are used for drying, and coal is used for burning. J. W. Jenkins is manager of this company.

The Red Cliff Brick & Tile Co. has been incorporated at Nanaime, near Victoria, B. C., and a clay property of 117 acres secured.

# POTTERY NEWS

East Liverpool, O., Feb. 26.—Business is looking up in the domestic pottery industry, and, it is related more orders were booked during the first eight weeks of the new year than during the corresponding term in 1910. The demand for the better class of domestic pottery has been more generous than heretofore experienced. On the other hand, the pottery manufacturers of the United States have made it a point to steadily improve their product, thus giving the foreign manufacturer no "better goods" ground to stand upon.

The kiln capacity of the general ware pottery production of the United States will be increased this year, by Fred Sebring erecting a nine-kiln plant at Sebring, O., construction upon which is expected to commence not later than March 15, or as soon as weather will permit. Only two kilns were added to the production in the East Liverpool district during 1910 and these were erected at the plant of the Trenle China Co.

At East Palestine there was an increase of four kilns and these have just recently been placed in operation.

At Canonsburg, Pa., six kilns were erected at the new plant of the Canonsburg Pottery Company.

At Wheeling (W. Va.) all the kilns of the Wheeling Potteries Co., which were engaged in the domestic pottery production, have been converted to the sanitary branch of the trade, and in that city additional kilns have been built by the Wheeling Sanitary Manufacturing Co. So, by this record it will be seen that the kiln capacity of the general ware trade has shown a slight advance, notwithstanding the fact that some kilns were taken from the list and added to the sanitary trade.

The National China Co. has let the contract for the erection of a $5,000 addition to its plant at Salineville, O., and will use the annex for a decorating plant. The company disposed of its property in this city to the Harker Pottery Co. and is operating its Salineville property to capacity. The Harker company will be working their new addition in this city full time within another month.

The Grafton (W. Va.) Clay Products Co. has been formed with a capital of $25,000 and will build a new pottery there. Among the incorporators are C. T. Bartlett, of Grafton, and C. H. Warner, of Clarksburg, W. Va.

At Findlay, O., the Findlay Pot Co. has been compelled to increase its force of workmen because of an increase in orders. The firm manufactures all kinds of clay and refractory materials used in the manufacturing of glass.

Clay taken from Mount Oread is being used with success in the making of pottery in the School of Ceramics at the University of Kansas. This branch of the school is being backed by business men and interested women in Kansas and a complete pottery plant on a small scale has been installed at the university.

During February Seattle, Wash., had its first exhibition of pottery and over 300 pieces were exhibited. During the "show" talks on Ceramic Arts were given to interested audiences by William H. Kellogg.

The new ceramic department of Buchtel College, Akron, O., will be ready for the student body within a few weeks. This department will be under the supervision of Prof. C. M. Knight and Prof. H. E. Simmons.

John F. Kryder, of Alliance, O., is at the head of the new Ceramic Improvement Co., which was recently formed with a capital stock of $10,000. The intent of the corporation is to manufacture improved devices for the manufacturing of articles from clay.

Thomas Davidson, Sr., who has been in charge of the management of the Owen China Co., at Minerva, O., has taken a similar position with the Carrollton Pottery Co., at Carrollton, O. His son has succeeded him at the Minerva plant.

The Carrollton Pottery Co., at Carrollton, O., which has been operating under a Delaware charter, has cancelled that paper and has taken a charter out under Ohio laws. The same names which appeared upon the first incorporation papers are on the new Ohio charter. The company recently increased its capacity by the erection of two kilns and larger warehouses and clay shops.

The J. H. Strobel Pottery Co., of Cincinnati, O., has changed its name and will hereafter be known as the Strobel Tile Co.

It is generally believed that the new pottery at Alexander Place, Cannonsburg, Pa., will be ready for operaations not later than April. Construction has been held back on account of the weather.

It is reported that the Canadian Spring Water Co., of Grandview, N. Y., will erect a small pottery and brick plant. It has the right to do this under its new charter, which has been recently obtained.

It is currently reported that two pottery salesmen, one from East Liverpool and another from Sebring, O., have talked the matter over of forming a company to purchase the idle plant of the New Castle China Co.'s plant, and placing it in operation. There is nothing definite, however.

Evas H. Sebring, who has been a half-interest owner in the plant of the French China Co., at Sebring, O., has disposed of a quarter interest in that concern to O. H. Sebring, and the former will give up the management of that property to become identified with the Oliver China Co., also of Sebring, and which is owned by George Sebring. The latter is now in Florida, where he is actively engaged in the real estate business.

Plans have been completed for the new pottery plant for the Lawrence Clay Products Co., of Canton, O. The property will be located at North Lawrence, O., but main offices will be in Canton.

At Glasgow, Ky., a new pottery is to be built for the manufacturing of stoneware by A. L. Harris.

It will not be very long until the Warwick China Co., of Wheeling, W. Va., will be showing a very clever line of vitreous china dinnerware, and in a new dinnerware shape. This will be a plain effect and it is believed the new line will be ready for the trade by June. Chemists are now at work on the new china body.

Will S. George was elected president of the East Palestine Pottery Co. recently and then left for the Bermuda Islands. Robert N. Logan, who formerly worked in the "shop" at East Liverpool, was elected secretary, one of the youngest men in the business occupying that position. Logan is one of those fellows who has worked himself up from the ranks and is making good. Other officers are: E. A. Sawhill, vice-president, and treasurer, W. C. Wallace.

# SAND LIME DEPARTMENT

## THE SAGINAW SANDSTONE BRICK CO.

Since the sand-lime industry is progressing so rapidly, although still in its infancy in this country, many new plants are being established. Among the most thrifty is that of the Saginaw Sandstone Brick Co., located near Saginaw, Mich. Mr. C. Reinke, general manager, in a recent communication, tells us of conditions, as follows:

We started our factory later than usual last year, on account of additions we built to our factory for storing sand and lime. We ran 252 days, making 6,754,775 brick on one press, day run; we sold and delivered during the same time 6,130,000 brick. Since the first of the year we have been shipping almost entirely by sleigh. Every day during the first week in January we loaded from 42 to 47 farmers' rigs, which were hauling the brick for a church near Bay City, a distance of over 14 miles, besides taking care of our local trade. For the week ending Jan. 7, we sent out 228,600, and for the week ending Jan. 14, 273,340, all by sleigh. We are enclosing a photograph showing our plant and some of the farmers' rigs waiting for brick. We are still running the factory and expect to run all winter with the exception of a week's shut down to enable us to do some repairing on our boiler and arch. The outlook for business is much better than a year ago.

Hauling Brick by Sleighs in the Frozen North, Saginaw (Mich.) Sandstone Co.

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## WILL MAKE SAND-LIME BRICK.

The New England Brick Co., recently incorporated at Farmington, Conn., has commenced the erection of a plant for the manufacture of sand lime brick, artificial stone and similar products, at this place. The foundations are being built for a building 40x200 feet, with a boiler room 40x60 feet. These buildings are to be of steel construction. New England has been slow to take hold of this industry, but Hartford is now going to prove that it is worth while.

## SAND-LIME INDUSTRY PROGRESSING.

Since the sand-lime industry is becoming better known and many are planning to establish new plants, the needs in the machinery line have been proportionally increasing. The American Sandstone Brick Machinery Co., Saginaw, Mich., have been successful in establishing their Kommick System, which has proven eminently satisfactory in many plants.

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## PLANT REMODELED.

Mr. J. H. Grow, sales manager of the Allis-Chalmers Co., Milwaukee, Wis., has just completed the remodeling of a plant for the Oklahoma Granite Brick Co., at Oklahoma City, Okla., where the design was worked out under his personal supervision.

## NEW HARTFORD CONCERN.

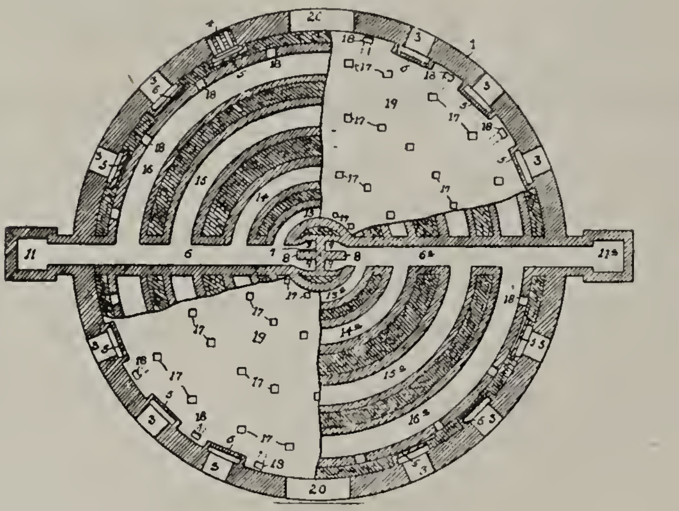
The New England Brick Co. has been organized at Hartford, Conn., with a capital stock of $75,000 in preferred stock and $75,000 in common stock. The officers are as follows: President, T. Macdonough Russell, Middletown; secretary, F. L. Sage, Hartford; treasurer, Lewis A. Storrs, Hartford. These gentlemen and Joseph F. Carey, Winsted; Frank W. Fuller, Torrington; H. E. Putnam, Hartford, and Oscar A. Newell, Hartford, are directors.

The company will make high-grade sand lime brick, artificial stone and tile and kindred products. It has purchased 140 acres near Farmington, on the road to West Avon, and will have a plant with a capacity of 45,000 brick a day. The land is located near a railroad.

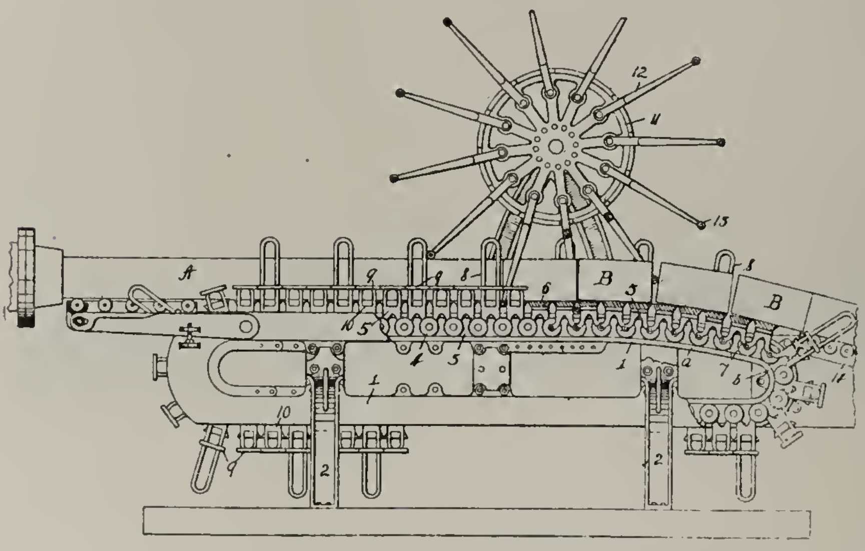
The officers are all experienced men. Major Macdonough was a former mayor of Middletown and president of the T. M. Russell Engineering & Supply Co. Mr. Sage is a consulting engineer. Mr. Storrs is an attorney-at-law. Messrs. Carey and Fuller are contractors, Mr. Putnam a dealer in mason's supplies and Mr. Newell a retired manufacturer.

# Recent Inventions of Interest to Clay Manufacturers

974,969—Brick kiln. William T. Hurd, Rochesterborough, Pa. Filed June 23, 1909. Serial No. 503,786. A kiln having, in combination, unconnected radial flues in its floor dividing said floor into segments, a vertical chimney leading from the outer end of each of said radial flues, means for regulating the draft in said chimneys, a series of concentric flues occupying each floor segment and extending from the circumference to the center thereof, the same ends of all the members of each series of concentric flues being closed and all the opposite ends opening into a radial flue, all the open ends of each series of concentric flues being adjacent all the closed ends of the next series of flues, and each radial flue communicating with but one series of concentric flues at one side thereof, and the floor having openings therethrough leading to said concentric flues.

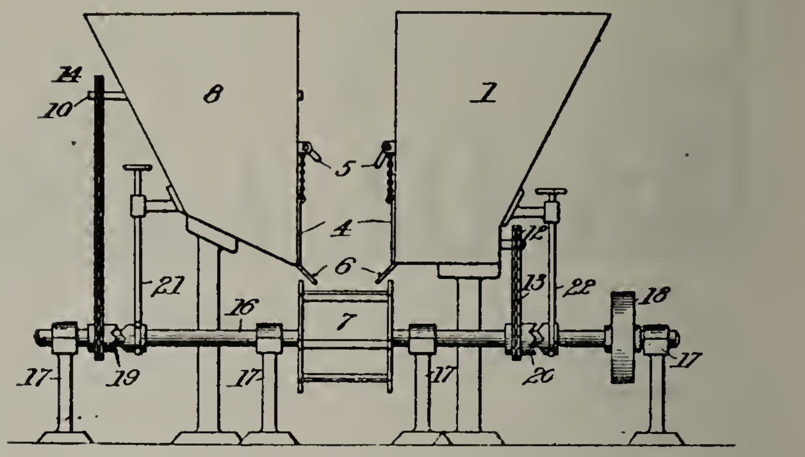


975,502—End cut brick machine. Jacob Bensing, Malinta, O. Filed Feb. 17, 1910. Serial No. 544,512. In an end cut brick machine, an endless track having its upper portion straight for a distance with its forward end portion formed with a prolonged downward curve, as *a*, and terminating in an abrupt downward curve, as *b*, a delivery table inclining downwardly from adjacent the forward end portion of the track, an endless carrier operating on the track and comprising a plurality of hinged sections, a rotary cutter operative to sever a column carried by the carrier in immediate advance of each third carrier section whereby three carrier sections are disposed beneath each column section, the center carrier section of each set remaining in constant flat contact with the bottom of the suporting column section until the forward end of the column section moves upon the delivery table, which table is arranged to support the forward end of the column section immediately before the center carrier section of a set drops from contact with a column section by following the curved portion *b* of the track, the rear carrier section of a set then supporting the rear end of the column section, in contact therewith until over half the length of the latter section has moved upon the delivery table, substantially as described.

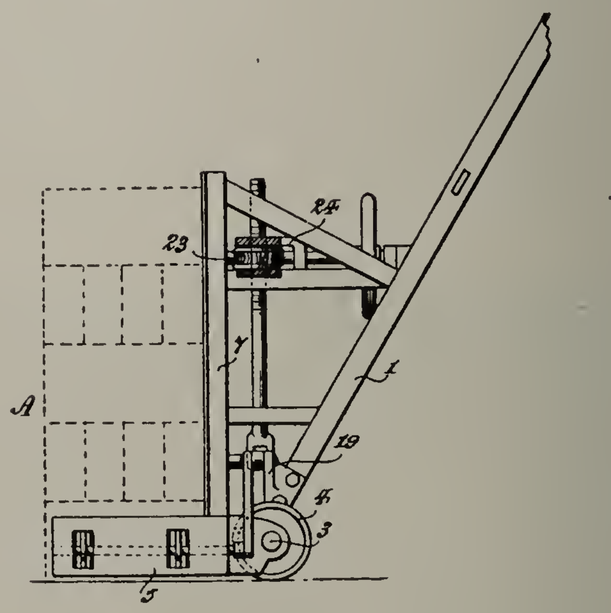


975,315—Mixer and conveyer. George E. Barnette, New Castle, Pa. Filed Jan. 12, 1910. Serial No. 537,761. The combination, with a hopper having an inclined bottom and a discharge opening at the base of said incline, of a crusher arranged in said hopper, and means to reciprocate said crusher whereby the material is also fed by it through said discharge opening.

The combination, with an endless conveyor, of a shaft carrying one of the wheels over which the conveyer is passod, two hoppers arranged at opposite sides of said conveyer, a feed screw in one of said hoppers, a crusher in the other hopper, means for driving said feed screw and crusher from said shaft, clutches for separately disconnecting said driving means from the shaft, and means for delivering material from said hoppers to the conveyor.

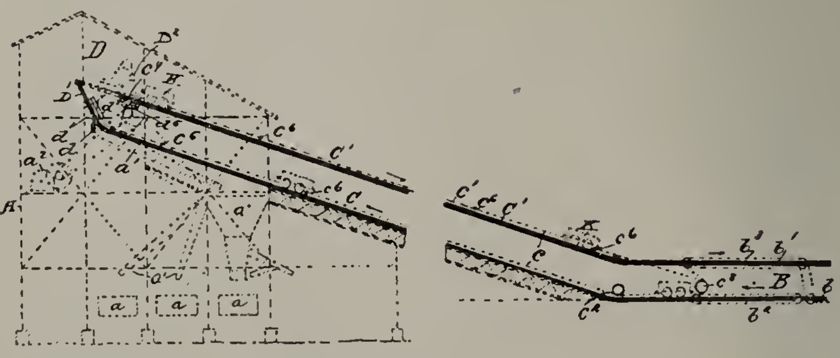


976,393—Portable Brick Handling Device. Raymond C. Penfield, New York, N. Y. Filed Oct. 24, 1908. Serial No. 459,347.



A portable machine for lifting and carrying bricks, comprising a movable frame having wheels, a pair of clamps for gripping a mass of brick, rock shafts having crank arms pivoted to the clamps, levers rigidly affixed to said rock shafts, links pivoted to said levers, horizontal levers pivoted to said links, a hand-wheel supported in the movable frame, and intermediate means between the hand-wheel and the aforesaid levers whereby the levers may be operated for the purpose of applying the clamps.

976,169—Continuous car dumping mechanism. Frank C. Greene, Cleveland, and Charles G. Palmer, East Cleveland, O.; said Palmer assignor to said Greene. Original application filed Jan. 19, 1906. Serial No. 296,764. Divided and this application filed Sept. 6, 1907. Serial No. 391,565. In mechanism of the class described, the combination of an endless cable, a carrier member adapted to be conveyed thereby, and an oscillatory transfer device adapted to receive said carrier member from one portion of said cable and place the same on another portion thereof, said cable being connected to operate said transfer device. In mechanism of the class described, the combination of a vertically disposed sheave, a cable passing around the same, a carrier member adapted to be conveyed by said cable, and an oscillatory transfer device adapted in its lower position to receive said carrier member from the portion of said cable on the lower side of said sheave, and in its upper position to place said member, same side up, on the portion of said cable on the upper side of said sheave, said cable being adapted to periodically actuate said transfer device.



# TRADE REVIEW

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### OUR EASTERN LETTER.

New York, Feb. 20.—The common brick market throughout the east is dull. Prices for Hudson River common brick at present run from $5.25 to $5.50 which has prevailed, with few exceptions, ever since Jan. 21st, when they advanced from $5.00 to $5.25. The Sayer & Fisher Co., representing the Raritan River or Central New Jersey brick industry, is still quoting nominal prices of $5.50 to $6.00 with few sales. Last week there was only one bargeload of this brick in the market, although railroad shipments to Newark and other New Jersey points, with here and there a contract cargo to Brooklyn, are going out from Sayerville. These two sources of supply constitute practically all the activity for common brick in this market, the North Jersey, Connecticut and Trenton brick companies supplying merely local trade.

But a singular condition prevails in this market. In spite of large prospective operations and the fact that last week there were only eight cargoes in the open market, dealers are satisfied to load brick from stacks at practically the same prices at which they stored their winter supplies. Even covered cargoes will not bring more than a shilling to a quarter a thousand over open market prices. In spite of this condition the Cornell Towing Co. tried to send its powerful ice breaking tug Hercules up the Hudson River last week in a vain effort to bring in the brick which some manufacturers have piled on barges waiting the first opportunity to send in here. If more brick comes in before the present scanty supply is further depleted or dealers' stacks are run to ground, prices will go lower and the manufacturers will be put in the position of running off their 350,000,000 reserve brick at bargain counter prices, when the prospects are so excellent for not only taking care of that supply but for selling it at a respectable figure.

In four out of the five boroughs of this city building construction plans reported up to Feb. 11th, show a total valuation of $20,123,079 for 1911, as compared with $16,678,194. To show that this condition is not local, Bradstreet's reports building conditions to be better than at any time since last August. Mild building weather is partly responsible for this. It cites the fact that out of eighty-eight cities of the United States in January, the totals were $38,208,049 as against $33,562,409 in December and $34,190,785 in January, 1910.

During the first half of February determined efforts were made to bring brick prices up to a suitable level but without much success. Just as demand began to increase and the amount of brick on hand began to be depleted, snow fell, and this was followed by a protracted cold spell which interfered with brick laying. The result was a falling off in demand and prices fell back to their old level.

Tables of transactions during the last two weeks of January follow:

Left over, Jan. 21, 4.

| | Arrivals. | Sales. | Covered. |
|---|---|---|---|
| Monday | 13 | 2 | 0 |
| Tuesday | .. | .. | .. |
| Wednesday | .. | 3 | .. |
| Thursday | .. | 1 | .. |
| Friday | .. | .. | .. |
| Saturday | .. | .. | .. |
| Total | 13 | 6 | .. |

Left over, Jan. 28, 11.
Prices asked, $5.75.
Sales prices, $5.25 to $5.50.
Quotations on covered cargoes, $5.50 to $5.57.
Left over, Jan. 30, 11.

| | Arrivals. | Sales. | Covered. |
|---|---|---|---|
| Monday | 6 | 4 | .. |
| Tuesday | .. | 1 | .. |
| Wednesday | .. | 2 | .. |
| Thursday | .. | 1 | .. |
| Friday | .. | .. | .. |
| Saturday | .. | 1 | .. |
| Total | 6 | 9 | .. |

Left over, Feb. 8, 8.

Brick monufacturers up the Hudson are not making any plans for the spring, so far as public announcements are concerned. Few of them are planning extensive alterations and none of them have made any move so far to overhaul their machinery preparatory to spring reopening.

Announcement was made, during the last week, of a change in the business of one of the large up-state brick companies, which has particular interest in this district because of the large sales of this commodity here. The manufacturing and selling departments of the New York Press-Brick Co. of Rochester was announced by the president, E. J. Burke. The selling organization will cover New York state, Western New England and the Canadian cities. It will also handle, it is said, the product of one of the big terra cotta factories and continue the distribution of the Pennsylvania Fireproofing Company's fire clay hollow tiles from the St. Mary's, Pa., factory. This company started in Canandaigua twenty years ago. In 1894 the small plant built by E. J. Burke, president of the present company, was merged into the New York Hydraulic Brick Co. and operated until 1903. Expanding business necessitated the location of the fire clay plant in Tioga County, Pa., and the raw material was shipped from that point. In 1905, the manufacture of ironspot brick was discontinued at Canandaigua, on account of the reduction in the price of the finer brick. The following year the company made many changes in the plant for the purpose of manufacturing hollow tile, and a year ago a contract was made with the Custodius Co. for the manufacture of radial chimney blocks. Difficulty in obtaining high grade help in the Canandaigua district, owing to the decadence of brick-making industries there, made it necessary to move the Canandaigua plant to Wellsboro, Pa., and Mr. Burke and his associates have succeeded to the selling business in New York state and Western New England.

The condition regarding labor mentioned in the statement of the New York Press Brick Co., is not by any means unknown in other brick making sections of the Hudson river district. The prospect of steady, all-year-round work on the great water supply construction operations in proximity to many of the Hudson river brick yards and higher wages resultant upon state work, has gradually drawn the laboring element from the brick yards until last spring it was a serious question whether some of the yards would be able to open when they had planned.

One manufacturer said, regarding this, last week:

"Labor promises to be scarce this year; even more so than in 1910. The great amount of public work accounts for this. The state is calling for high and low grade labor in Ashokan, Catskill and Croton dam works, not to mention the great pressure tunnel through the Hudson mountains and under the Hudson river. Then, there is the prospect of subway construction, starting before the year is far advanced, which will make a still heavier drain upon the labor market. We had trouble enough in manning our yards last year, but fortunately we had uniformly good brick-making weather, and we were not seriously handicapped. Again, the demand for brick was not abnormal.

"Now we have 1911 looming up larger than we expected. True we have a large supply up there in our sheds, but if the labor market proves tight, this great quantity of brick will not prove a handicap but rather, I believe, a blessing, because it will enable manufacturers to get their yards well manned before starting. In other words, the manufacturer will not be forced to start early.

"None of us can afford to pay higher wages to keep our hands, because we are not getting enough for our products now to give us hardly any profit. We may be glad we have that 350,000,000 brick before summer comes."

Some views of the outlook were ascertained as follows:

Sayer & Fisher Co.—"Our complaint is not with the regular building season of the year but with the present. There is an element of uncertainty which is bound to clear up before long, but there is a question as to whether the small work will keep pace with the larger operations. So many of the latter are coming out and so few of the smaller, that there is room for speculation as to whether 1911 will not develop quality rather than quantity. Too much of one or the other is bad. We would like to see a medium tendency. We are not making any definite plans for spring, preferring to wait for developments."

American Enamel Brick & Tile Co.—"Business could be better, but we have little to complain of. We have been supplying a fair small trade, which, we believe, will improve. We are preparing to take care of a normal demand all year, both at our kilns and here in New York."

National Fireproofing Co.—"The prospects for 1911 are good. We have canvassed practically the entire country and find that the sentiment is good. Already we have had a tremendous demand, proportionately speaking, for fireproofing material, but it does not warrant any further extension of our capacity except that which requires ordinary up-keep."

Some idea of the way brick makers feel regarding the outlook for the building season for 1911, is voiced by the most prominent brick mold maker in the East. This is what one man said recently:

George B. Mentz Co.—"Busy? Say, we're up to our necks here. Look around the shop. Every machine is working to capacity and we've our usual quota of help. That certainly looks as though brick makers are planning for a good year. We're making shipments every day to all parts of the country. Believing that there will be a large 'eleventh hour' business, we have laid up a stock which will meet any demand and, judging by the inquiry we now have, the outlook appears bright to us."

Empire Brick & Supply Co.—"The present price of brick should encourage building operations. We think the year will prove to be a better one than last."

John B. Rose Co.—"Our plants will be thoroughly overhauled this and next month preparatory to opening under the usual headway at the usual time. We have some large contracts on hand which will take a large percentage of this year's output. We look for an improvement in the brick business, but we do not think prices will go much above $6.50 a thousand at any time this year."

Carey Brick Co.—"We have been shipping all winter to Boston and New England centers by rail and have found no falling off in demand, to speak of. The open winter has permitted building operations to progress somewhat more uniformly than last winter and prices in that territory have been stronger than in New York."

James R. Sayre Co. (Newark)—"The prospects of big Pennsylvania railroad terminal work in this city and a general strengthening of the building situation in North Jersey leads us to believe that the outgo of brick this year will be steady and considerably in advance of that of last year."

## THE GREAT MIDDLE WEST.

Des Moines, Ia., Feb. 23.—Now that spring is in sight there are signs of renewed activity in the clay industry.

The stockholders of the Grinnell, Iowa, Brick & Tile Co. held their annual meeting last week and re-elected the old board of directors with the exception of William Shaw, who is succeeded by Judge J. P. Lyman.

The American Brick & Tile Co., at Mason City, Ia., has purchased a half interest in the Charles Hotel at that place.

Messrs. Leon Vincent, Webb Vincent and the latter's three sons have announced that they will erect a large clay products plant next spring on land they own near Ft. Dodge, Ia. The plant will be an addition to the many now in operation in that vicinity. Mr. Vincent is president of the First National Bank there.

The Sheffield Brick & Tile Co., Marshalltown, Ia., held its annual meeting and elected the following officers: President, C. L. Smith; vice president, L. B. Carhart; secretary and treasurer, C. C. Carhart. The company shipped out during the last year 972 cars of brick and tile, besides selling many carloads to persons residing within a radius of twenty miles. The business showing is very satisfactory. Over $5,000 was paid out by the company last week to stockholders and employees.

The directors of the Boone, Ia., Brick, Tile & Paving Co. met Friday afternoon in the office of the president, J. L. Stevens, anl elected the following officers for the coming year: President, J. L. Stevens; secretary, C. W. Payne; treasurer, T. L. Ashford. The company has enjoyed a prosperous year and it is planned to increase the output during the coming year. The dryer will be enlarged and the working force increased to probably one hundred men.

The people of Fertile, Ia., are delighted over the report that the brick and tile plant and the peat industry will be renewed in a short time. Three years ago a stock company was organized to develop the peat industry and immediately they added to this the manufacture of pressed brick, an endless amount of clay being in close proximity to the peat beds. Possibly $50,000 was invested in the plant and it had hardly been put into operation before there was trouble among the stockholders and members of the board, with the result that legal entanglements arose which prevented the operation of any part of the plant and it has been shut down ever since.

Mason City manufacturers have organized an association representative of nearly every factory in Mason City. Richard Valentine was elected president and with him a full complement of officers. The object of the organization as announced by some of the members is for the purpose of more fully looking after the interests of manufacturers generally. This will be done in connection with the association in its relation with legislation, freight rates and numerous minor matters.

In the election of officers most of the factories of the city are represented. They are: President, Richard Valentine, representing the North Iowa Brick & Tile Co.; vice presidents, F. R. Boyle, representing the Northwestern States Cement Co.; T. L. Flemming of the Farmers' Co-operative Brick & Tile Co.; T. W. Martin, of Martin Manufacturing Co.; secretary, G. W. Howland, representing the Colby Motor Co; treasurer, Ira Knapp, representing the Vulcan Iron Works. Directors, I. I. Nicol of the American Brick & Tile Co.; F. A. Stephenson, of the Mason City Clay Works; C. F. Johnson, of the American Fire Proofing Co.; E. O'Donnell, of the Lehigh Cement Co.; Jacob E. Decker, of the Decker & Sons Packing Co.; P. G. Seevers, of the Mason City Candy Factory; N. Mattson, of the Mattson Glove Works; W. M. DuPuy, of the Chase Manufacturing Co.

The brick yard south of Davenport, Ia., has again changed hands, Mr. Weisenberger having sold out his half interest to Christopher Raynor of Maquokcta.

The stockholders of the Stuyvesant Brick Co., Minonk, Ill., elected these directors: Cornelius R. Sheffer, Leonard B. Sheffer, Roy W. Smith, Fred H. Ferris, Charles A. Howland and Leslie A. Cook. The new directors elected these officers: President, Cornelius R. Sheffer; vice president, Charles A. Howland; secretary, Leonard B. Sheffer; treasurer, Cornelius R. Sheffer.

Work has started on the work of clearing away the debris of the $20,000 fire at the plant of the Alton Brick Co. The company expects soon to have their plant in better shape than before.

The two brick plants at Decatur, Ill., have put out a total of 8,000,000 brick during the past year.

Work at the D. H. Haeger Brick & Tile Works, near Coal City, Ill., is progressing very rapidly, and great activity is displayed on every side. Six of the kilns have been completed and six others are to be built. Excavations are being made for the brick buildings. They expect to make their own brick which will be used to complete the work. Two switches have been laid from the track leading to the coal mines, and a third is soon to be laid. It is thought that all will be in readiness for work by early spring.

The Abbey Brick Co. has been incorporated at Chicago with a capital of $50,000 for manufacturing and dealing in brick, tile, lime and other building material. Charles W. Labinsky, Alfred B. Davis, Jr., and Glenn W. Jackson are the incorporators.

## KANSAS CITY.

Kansas City, Mo., Feb. 25.—Building contractors are much pleased with the fine open building weather of the past month. There has not been a day in all that time in which regular work could not be taken care of in the building line, and more than half the time it has not even frozen at night. This is very unusual weather in this city for the last half of January and first half af February, and some are inclined to think that we will pay up for it with a late spring and too much rain for anything like regular work. Some contractors are complaining about not taking up work early in the year, instead of putting off the more important work until spring opens, for they are having no trouble in getting material now and the weather is all that could be asked, and plenty of men ready to work, so more favorable conditions could hardly be asked for rapid work. Those who have had a good many small jobs on hand have been finishing them with great rapidity, and are getting a long start on their year's work.

It is generally predicted among brick handlers that there will be a shortage in the spring, and that advancing prices will be the result. This is a usual rather than an unusual condition, but this year the shortage may be even greater than expected. It will depend a great deal on the weather. Not many of the plants in Kansas and Oklahoma, which were compelled to shut down for lack of water, have none to operate with yet, and unless the rains come pretty soon it is going to throw them late in the spring to market their first brick. It takes time to make brick, burn them, and then get them to market, and plants should be starting up now. Another thing, the open weather has made an unusually active market right along and the stocks on hand have been thinned out; some plants report their yards entirely cleaned up and a large bunch of orders unfilled to begin the year with.

If brick men are right, the contractors who are able to get delivery now should be getting it, for a little later they may be compelled to wait for brick, and that at the time of year when they will want to be working the hardest.

Local plants are beginning to open up again. The Diamond plant of the Kansas City Hydraulic Pressed Brick Co. has been running steadily right along through the season, having switched from gas to coal as a fuel early in the winter, and now a few other plants are beginning to produce. The Lyle Brick Co. has been operating one plant, but the other has been undergoing repairs and improvements, new machinery being added to make repressed paving brick, and also some new kilns have been added. Flanagan Bros. are also about ready to begin operations again.

Thomas Eadie, head of the Eadie Building Supply Co., left the latter part of January for a trip of a month or six weeks to southern California.

According to the statement of real estate men, there is going to be a vast amount of building during this coming summer and fall. A good many large projects are expected to be completed and the erection of small buildings is to be greater than ever. They say there will be a big demand for everything except apartment houses. It seems that loan people are of the opinion the apartment house business has been overdone here, and they do not like them as risks in the loan business. They are in the market for loans on cottages and residences outside of the apartment house lines, however.

Those who have been contemplating big buildings in the down-town district are also reporting that more interest is being taken in their operations by the loan people, and that some very fair offers have been made to furnish money, much more so than at any period of last year.

C. R. Ball, of Plainview, Tex., is interested in a plan to establish a factory to make sub-irrigation tile.

The Howard Brick Co., of Claremore, Okla., has elected the following officers: J. H. McBirney, of Tulsa, president; John Dirikson, vice president; John N. Hall, secretary; Joe Knox, general manager.

The Gulf Coast Brick & Tile Co. has just completed its $35,000 plant in Brownsville, Texas. C. W. Winstedt, of Houston, Tex., is the president.

The Salina Vitrified Brick Co., of Salina, Kas., is adding to its capacity by the erection of a new kiln of 275,000 brick capacity, and also adding to the capacity of the dryer.

The Muskogee Dry Press Brick Co. has been incorporated in Muskogee, Okla., with a capital stock of $30,000, by S. J. Allen, J. Allen and D. Rodgers.

Kimbrough & Dodson, of Dallas, Tex., were the purchasers of the Alvin Brick Plant, Alvin, Okla., which was recently sold at auction.

The Columbus Vitrified Brick & Tile Co. has been organized in Columbus, Kan., with the following officers: President, L. J. Slease; vice president, George Rood; manager, E. D. Whiteside; secretary, Fred Baldwin; treasurer, M. A. Householder.

The Harlingen Brick Works, Harlingen, Tex., is about to double the capacity of its plant.

The Pawhuska Vitrified Brick Co. is spending about $20,000 in the improvement of its plant.

The Glover Tile Co. has been incorporated in Fort Collins, Colo., with a capital stock of $15,000, by C. N. Glover, George Clammer, and Earl E. Searchett.

The Quinton Coal & Brick Co. has been incorporated in Quinton, Okla., with a capital stock of $600,000, and will build a plant to manufacture vitrified brick.

The Kansas City Terra Cotta Co., which was recently incorporated with a capital of $100,000, by C. C. Corwin and others, will establish a plant with a weekly capacity of 50 tons of terra cotta. The main building will be 62x244 feet, and besides the boiler and machine shops there will be another building 30x60 feet.

The T. R. Mills Lime & Brick Co. has been incorporated in Little Rock, Ark., with a capital stock of $90,000, by T. R. Mills, C. B. Mills and H. D. Lewis.

The Sedalia Brick & Tile Co. has been incorporated at Sedalia, Mo., with a capital stock of $50,000, by Jerome Moyer, H. W. Graham, J. Overmier and others.

## THE DAKOTAS.

Substantial progress was made in the utilization of the lignites of North Dakota in 1909, as is shown by an increase in production from 320,742 short tons, valued at $522,116, in 1908, to 412,205 short tons valued at $632,184, in 1909, a gain of 91,463 tons, or 28.5 per cent, in quantity, and of $110,069, or 21 per cent, in value, say the United States Geological Survey Press Bulletin.

Extensive beds of lignite underlie the greater part of the western half of the state, and although in calorific value it is not a high-grade fuel, requiring special furnaces and large grate areas when used for steam-raising and leaving much to be desired when used for domestic heating and cooking, it has been found particularly well adapted as a fuel for use in the manufacture of brick, an industry that is growing rapidly in this state. A number of brick manufacturers at Dickinson, Scranton and Kenmare have stated that lignite is especially desirable for this purpose because of its smokelessness and sootlessness in combustion and its relative low cost as compared with other fuels. One ton of lignite has been found equivalent to one cord of ordinary brickyard wood. The time required is from eight days to two weeks, according to the dryness of the brick when set in the kiln and according to the quality of brick manufactured. Some of the brick manufacturers mine the lignite used by them.

### Use Lignite in Gas Producer.

With the development of other manufacturing industries in the state the utilization of lignite for the generation of power through the gas producer will increase. The investigations conducted by the United States geological survey at the St. Louis exposition have shown that lignite is an excellent gas-producer fuel. It yields a gas of higher quality, though less in quantity, than either anthracite or bituminous coal, and when so used in the generation of power equals in efficiency the best bituminous coal under boilers. This means much for the brick manufacturer far from the coal regions.

F. H. Perry, of the Rapid City Pressed Brick Co., is also president of the newly organized company which is putting in a gypsum plant at Hot Springs, S. D.

Mr. Ferdinand Leutz, of the Hebron (N. Dak.) Fire & Pressed Brick Co., states that the output of their plant this year will be 50 per cent greater than last year. They are now making large shipments of their brick to several large cities on the Pacific coast, and to points in British Columbia, aggregating nearly 2,000,000, and several millions will be made this year, as they are already under contract to supply several large jobs.

At the annual meeting of the stockholders of the Sioux Falls (S. D.) Pressed Brick Co., the old officers were re-elected. Among the outsiders in the city to attend the meeting were B. Stevenson and George Grose of Verdigree, Neb., and John A. McCullough of Denver.

## FROM NEBRASKA.

Omaha, Neb., Feb. 23.—Polenske, Schellak & Co., of the Hastings, Neb., brick works, sent out fine 1911 calendars to their friends.

The Hibberd Brick Co., of Kearney, Neb., has been sending brick by car load lots to Gibson, Neb., for various improvements there.

The Western Brick & Supply Co., of Lincoln, Neb., is now under the management of P. McIntosh, who came from Hastings, where he was engaged in the lumber and coal business. Mr. McIntosh succeeds H. Stephenson. Other plants of the company are operated at Hastings and Holdrege and will continue to run full time.

New machinery has been installed at the plant of the Nebraska City Brick Co., which will enable the company to manufacture all kinds of drain tile, also hollow blocks. There will be other improvements made and the capacity will be more than doubled.

J. Fred Smith, president of the Smith Brick Co., and R. E. Sunderland, of Sunderland Bros., were Omaha men who attended the National brickmakers' convention at Louisville, Ky.

Mr. Hodkinson, a brick man, has taken a five-year lease on ground at Ogalalla, Neb., and established a yard there. At the expiration of the five years he will be given a deed to a ten-acre tract. The citizens raised money to buy the ground for him.

Mr. Herman Deiss, of Omaha, aged 84, died in January. Mr. Deiss had been a resident of Omaha for thirty years and was prominent in the brick business, until he suffered a stroke of paralysis thirteen years ago.

John Wentworth, of Ord, Neb., has sold his property to Mr. Holecek, of St. Paul, who has taken a place with the Gruber Brick Works, and will go to Ord to reside.

The Table Rock Clay Co., of Table Rock, Neb., elected the following officers at their annual meeting: E. P. Bracken, president; George F. Cotton, secretary; J. D. Miller, treasurer. The company has sold its lower brick plant to parties who are thought to be representing Kansas paving brick manufacturers. The plant will be remodeled and enlarged for the extensive manufacture of paving brick.

The Capital Paving Brick Co., of Des Moines, Ia., which is owned by the Barber Asphalt Co., has orders for a 1911 delivery of 2,100,000 paving blocks, to be used at Chariton and Villisca, and 400,000 brick for the extension work to the Pacific coast of the Chicago, Milwaukee & St. Paul railroad.

The stockholders of the Mt. Pleasant, Ia., Brick & Tile Co. held their annual meeting and elected the following officers: President, H. K. Smith; vice-president, Wm. Stewart; secretary-treasurer, Jas. T. Whiting; manager, R. A. Chrissinger; assistant secretary and manager, U. S. G. Williams.

At a recent meeting of the Rockford, Iowa, Brick & Tile Co., R. F. Bruce was chosen secretary of the company to succeed Geo. E. Shear, who has held that position since the organization of the company.

The Rockford, Ia., brick and tile plant has only just started running, but a number of inquiries have been received from contractors who have seen samples of the brick and hollow block and who want the Rockford material. Running at full capacity the machinery will furnish material for 18 kilns, but only four kilns are in operation now, requiring the use of the machinery only a third of the time. Superintendent Wilson, who was looking after the engine in the absence of Engineer Jubb, had his left hand lacerated in the machinery. The first kiln of brick made with the machinery in the new plant has had the heat drawn from it and the work of removing the brick started. The firing has been somewhat delayed on account of shortage of coal.

Fifty per cent capacity will be added to the Springdale plant of the Sioux City Brick & Tile Co. The company now turns out 30,000 brick a day at this plant.

The Webster City Brick & Tile Co., of Webster City, Ia., has had its factories closed down for the regular winter period of repairs. This industry is one of Webster City's most flourishing enterprises and the year just closed has capped the climax of anything ever before experienced in the sale of its output. Another unusually busy season is predicted for 1911.

Timber Lake, S. Dak., has a new brick yard.

Parties in the vicinity of Custer, S. Dak., have been making tests of the clay beds in that section, and it is probable that a brick yard will be a new industry in that locality during the year.

F. H. Perry, president and general manager of the Black Hills Pressed Brick Co., and the Rapid City Lime & Gypsum Co., has been in conference with the commercial club at Hot Springs, S. Dak., on matters connected with the development of the gypsum field in that vicinity, with the result that a $75,000 plant will likely be built at Erskine, S. Dak., in the near future.

J. D. Smith, a homesteader near Timber Lake, S. Dak., has discovered a strata of excellent brick and tile clay on his claim, and tested it out by burning a small kiln. It gave him brick much heavier than those of ordinary clay and he is preparing to put in a plant this year to supply that part of the country. He hopes to furnish building material cheaper than lumber.

The manager of the Fort Pierre, S. Dak., brick yard has been experimenting with liquid fuel to take the place of coal. It is found to be cheaper and he will change to this method of burning.

Charles E. Hensen, of Bucyrus, Ohio, a practical brick man, is the new superintenednt of the Cody, Wyo., brick plant. He comes highly recommended and will start immediately to put the plant in shape and will resume operations as soon as the weather permits. The company has good prospects for this year, as quite a number of orders have been booked.

It is said that Rawlins, Wyo., has the best material in the state for brick making, yet has no plant. The citizens would like to see a plant started there.

Mr. J. C. Gould, of Turnstall, Staffordshire, Eng., has located at Carney, Neb., where he will establish a tile decorating factory. Arrangements have been made by an Omaha firm to take the entire output of the factory.

## TEXAS AND THE SOUTHWEST.

Ft. Scott, Tex., Feb. 21.—The Texas Terra Cotta & Pressed Brick Co., recently organized with a capital of $100,000, are equipping a plant at New Waverly. Mr. Milton McConnell is promoting the concern and will open headquarters at Houston. Mr. Geo. Wilt, an experienced clay man, will be the superintendent of the plant.

The Wichita Falls (Tex.) Brick & Tile Co. has commenced operations at its new plant, which cost nearly $100,000, and will employ 100 men. The company's output has been 60,000 brick daily for the last two years, but the new plant will treble its output.

Mr. Thos. M. Harwood, secretary-treasurer of the Sunset Brick & Tile Co., of Gonzales, Tex., says: "Business in this immediate section is a little slow at present writing, but the prospects are excellent for a big spring business and we are ready for it, having on hand about 4,000,000 brick made and burned. Prices are good, our common brick bringing us $8.00 per M. f. o. b. the plant.

The Greenville (Tex.) Brick Co. has purchased a very large brick plant near Galveston, and will remove it to Greenville at an early date.

The new shed which is under construction for the Harlingen, Tex., brick works is nearing completion. New kilns have also been installed in the plant.

Machinery for the brick manufacturing plant, being put in by Contractors Will Randolph and Fred Smith, on the old Grant place, east of Huntsville, Tex., has all been installed and the work of making brick will begin at an early date. The soil of Walker county is fine and produces a good quality of brick.

Organized to engage in the mining of coal and the manufacture of vitrified brick, the Quinton Coal & Brick Co., of Oklahoma City, Okla., capitalized at $600,000, will apply for papers of incorporation and a charter from the secretary of state's office Thursday. Dr. J. M. Postelle and E. J. DeuPree, of Oklahoma City, and H. C. Jarretson, of Quinton, Okla., are the incorporators. The company will take over the holdings of the Quinton Coal Co., which holdings include a coal mine in operation and 6,000 acres of coal land, near Quinton, Okla., on the Fort Smith & Western railroad. After the granting of a charter and the final organization and election of company officials, a brick plant to cost approximately $16,000 will be erected at Quinton to manufacture vitrified brick. It is stated that a fine grade of shale was found on the land, which would manufacture into the best of vitrified brick. The general offices of the company will be in Oklahoma City, while a branch office, the brick plant and the brick yards of the company will be located at Quinton.

At a meeting of the stockholders of the Pine Bluff (Ark.) Brick Co., the following officers were re-elected: A. Brewster, president; W. H. Westbrook, vice-president, and Garland Brewster, secretary and treasurer. The directors were also re-elected and include the officers and Edgar Brewster and J. H. Watkins.

Captain W. H. Wakefield, president of the Wakefield Mantel & Tile Co., Kansas City, Mo., and a resident of Kansas City twenty-five years, died recently at his home.

The Southwestern Brick Co., which is composed of a number of local investors at Tucumcari, N. M., is endeavoring to put into operation plans for the manufacture of building brick. It is said that a 20-ft. bed of fine brick shale can be had at the company's lands four miles west of Tucumcari, and that two specimens in particular of finished brick, a white and red pressed brick, showed excellent qualities when put to a test before investors in the east. A company in San Francisco has offered to finance the venture, it is said, and a $10,000 plant will be put in, if their offer proves acceptable. It is hoped to be able to put brick on the Tucumcari market at little more than $12 a thousand.

The annual meeting of the stockholders of the Standard Brick Co., Coffeyville, Kan., was held and the old directors and officers re-elected. The company has enjoyed a very prosperous year. M. M. Bushong is the manager.

Little Rock (Ark.) Hydraulic Brick Co. is being organized by Leon Newmainville to establish a brick plant there.

The Sedalia (Mo.) Brick & Tile Co. has been incorporated with $50,000 capital stock by Jerome Moyer, H. W. Graham, J. Overmier and others.

## FROM THE NORTHWEST.

Tacoma, Wash., Feb. 19.—Walls of hollow terra cotta blocks are going to take a rank with walls of brick, wood, cement and stone in the construction of new buildings in Tacoma, Wash., in the very near future, as they have in the east and in Chicago and in other points in the middle west, according to the opinion of Architect Frederick Heath, who has provided for the use of the blocks in the walls of the new Christian Science church now in process of construction at Division avenue and 1st street. Work on the walls of this church is now in progress. Mr. Heath says the hollow blocks are cheaper and that they keep out dampness and heat or cold better than do ordinary walls for the reason that they provide numerous air spaces, which serve as non-conductors. He estimates that they are about 10 per cent cheaper than the ordinary materials. On the Christian Science church they save about $600.

The Christian Science church is the first building in Tacoma in which the hollow blocks were used. Although the blocks have been used in the east, it has been thought to be too great an expense or too uncertain a matter to ship them from the east.

While the brick plants of the Washington Brick, Lime and Sewer Pipe Co. have been shut down at Freeman and Clayton, Wash., the terra cotta factory of the company located at Clayton continues to operate with a full force of men. The big concern has secured the contract for terra cotta to be used in the construction of a new high school building at Portland and on several other important jobs throughout the northwest. This factory has continued to work almost to capacity throughout the winter.

The brick plants at Clayton and Freeman will be started about March 1, giving employment to about 100 men between them.

It is announced that the property of the Valleyford (Wash.) Brick & Tile Co. has changed hands. Strangers have been visiting and invoicing the property, leaving orders and instructions, equivalent to acknowledgment of ownership. It is hoped that an early resuming of business will be ordered.

The National Brick Clay Co. has incorporated at Portland, Ore., for $250,000. The incorporators are James H. McNicholas, Frank Comerford and A. King Wilson. The object is to manufacture brick and tile.

Joseph Rich has purchased ten acres northeast of Orenco, Ore., for a site for a brick and tile plant. The new plant is expected to be in operation by spring.

Considerable activity is shown at North Plains, Ore., and the town is expected to grow fast this year. The railway company is building a spur into the property of the North Plains Tile Shale & Brick Co. so the heavy brick making machinery may be installed. A force of men is working on the water system and it will soon be finished.

The establishment of another mammoth industry for Bellingham, Wash., is being planned. This enterprise will be the construction of a great brick and clay works, which will at least rival the Denny Renton Co. at Seattle, the biggest concern of the kind in the country. For more than a year past William A. Doyle, one of the original founders of the Denny Renton Co., has been quietly conducting a series of experiments with clay taken from the Samish district. Tests of all kinds and for all purposes have been made exhaustively and found, it is reported, to have been more than satisfactory.

Mr. Doyle has already secured a lease on the holdings of the buildings formerly occupied by the Industrial Iron Works, and it is here that he, together with his sons, has conducted his investigations.

At the present time the Denny Renton Co. of Seattle is working night and day, and even at that is unable to meet the demands of the trade. Speaking to a business man of the south side some time ago, Mr. Doyle stated his belief that, while there were great opportunities for the industry throughout the country, the day might come when that concern, which had the advantage of a waterfront location and steamship rates, would stand well in a "survival of the fittest" contest. It was the splendid opportunity offered by the south side in this direction that first attracted Mr. Doyle and his associates to this section.

Mr. Doyle is a man who has practically given a lifetime to the study of this subject.

Local brick men of Salt Lake City, Utah, estimate that there will be 20,000,000 to 25,000,000 brick on hand when building season opens in the spring, with prices ranging from $7.50 to $25 per thousand.

"Unless some unforeseen difficulty arises, the Dry Press Brick Co. of Sandpoint, Ida., will have have satisfied all their creditors and have their plant in Sandpoint running full blast by the middle of next month," was the welcome news given out by G. H. Williams, a prominent stockholders of the company.

The officers and stockholders of the Dry Press Brick Co., including Secretary George H. Williams, have been making settlements with creditors on the basis of 50 per cent cash and 50 per cent in stock. The company is to be reorganized and put on a firm financial footing and if the present plans are carried out the concern cannot help but be a great financial help to Sandpoint.

The pay roll will amount to $4,000 a month from the very start, and will employ about 60 men at the plant, which has a capacity of 1,500,000 brick per month. The company has a great deal of money invested in the plant and has expended large sums in wages and improvements, but are not asking for financial aid from the people of Sandpoint. All they want is the moral support of the people."

It is a well-known fact that there are abundant deposits of the finest of clay required for the making of brick by the process employed by the Dry Press Brick Co. in the vicinity of Sandpoint and the company owns enough of this material to keep their plant in operation for years to come.

## THE MIDDLE STATES.

The Yost Brick, Tile & Stone Co. has been organized at Cynthiana, Ind., with a capital stock of $25,000, the object being to manufacture clay, shale and stone products; incorporators are C. T. Yost, F. E. Yost and C. D. Hall.

Both sewer pipe factories at Grand Ledge, Mich., have commenced work, the Clay Product having been closed one week and the American Sewer Pipe several weeks.

Newton, Ia., is to become the home of another large factory. The plans are now complete for the building of a brick and tile factory there at a cost of $40,000. The Hough property, located southwest of the city, on the Rock Island railroad, has been purchased by the factory promoters. The new factory will employ about fifty men—thirty of whom will be expert clayworkers.

The clay on the Hough farm was found last fall by H. A. Brown, of Lehigh, Iowa. He took several hundred pounds to his factory at Lehigh and other clay factories at Fort Dodge, and when analyzed it was found to be of excellent quality for brick and tile and fireproofing materials. Other quantities of the clay were sent to the big factories at Bucyrus, O., for testing.

Reduction in freight rates on shipments of brick inside the state of Iowa save thousands of dollars each month to the manufacturers of brick and clay products.

Complaints filed by E. G. Wylie, freight commissioner of the Greater Des Moines committee, with the Iowa state railroad commission has caused the lowering of rates within the last three years.

A new tabulation of the effects of the rate reductions has been made, which shows the big drops made in three years time, also the percentage of the old rate in comparison with the new.

The following table compares some of the old rates with new rates:

| Distance Miles— | Old rate. In cents per 100 lbs. | New rate. In cents per 100 lbs. | Old rate. In per cents. |
|---|---|---|---|
| 500 | 21 | 11.8 | 178 |
| 450 | 18.5 | 9.8 | 189 |
| 400 | 16 | 8.1 | 198 |
| 350 | 13.5 | 7.5 | 180 |
| 300 | 11 | 7.5 | 147 |
| 250 | 9.5 | 7.1 | 134 |
| 200 | 8 | 6.5 | 123 |
| 150 | 6.4 | 5.8 | 110 |
| 100 | 4.8 | 4.8 | 100 |
| 50 | 4 | 3.8 | 105 |

The ten old rates given above as representative aggregate 112.7 cents, and as the ten new rates aggregate but 72.7 cents it will be seen: Where the new rate exacts as a transportation tax the payment of $1, corresponding shipments under the old rate would have required the expenditure of $1.55.

The relative unfairness of the Iowa intrastate rates as compared with the interstate rates was brought to the attention of the Iowa Board of Railroad Commissioners by the freight bureau of the Greater Des Moines committee and after formal hearing the rates that had been effective for so long on interstate shipments.

A new corporation has been organized at Barron, Wis., with an authorized capital of $30,000, of which $18,000 is already subscribed, to take over, enlarge and operate the Peter Larson brickyard and plant at Barronett. At the first meeting of the stockholders of the new company, Peter Larson, Gust Hafslund, James C. Larson, L. A. Evans and Louis C. Larson were elected directors for the ensuing year, and Peter Larson was chosen president and treasurer; Louis C. Larson, vice-president, and James C. Larson, secretary, and the selection of these officers insures the same capable management that has made the business a success in the past.

The present plant represents an investment of about $16,000, and it is the intention of the company to put in a new and up-to-date pressed brick machine, a tile machine and other machinery to make this the most complete plant of its kind in northern Wisconsin. The clay beds at Barronett are practically exhaustless and the quality is well suited to the manufacture of tile as well as pressed and ornamental brick.

Reports from Evansville, Ind., are that the general business averages fully up to same period last year and that collections have been fairly satisfactory. All factories are working full time and the outlook is regarded as most promising.

Reports are that the coming spring things will boom in Sandusky, Mich., in the building line. The greatest difficulty feared by the contractors at the present time is whether enough help can be secured to do the work in a satisfactory length of time. The brickyard there is all sold out of stock at the present time, and Mr. Bissett stated that the yard will have to run night and day to keep up with the demand for brick and tile.

The Burlington closed its factory for the winter months last Thursday after a most successful season. Work will be resumed with an increased force as soon as spring makes its appearance.

George W. Kennedy has closed out his interest in the Manitowoc company to E. Clark and Elmer Leach, of Oshkosh. The plant will be retained here.

## CLAY PRODUCTS IN CANADA.

Structural materials and clay products are the subject of a bulletin of the Department of Mines, giving the production in Canada for the calendar year 1909. The division is one of the most important in the mineral industry, and as a measure of the progress of the country is perhaps the best of all. Clay products, including cement and brick of various sorts, with lime, slate, building stone, etc., are in demand in proportion to the activity in the building trade, and sustained activity in the building trade means that other lines of commercial activity are or have been profitable. The figures of the bulletin show the value of the products in question to have increased from $11,530,000 in 1906 to $16.533,000 in 1909, the division in the latter year being as follows:

| | |
|---|---|
| Cement | $5,345,000 |
| Clay products | 6,450,000 |
| Lime | 1,132,000 |
| Sand-lime brick | 201,000 |
| Sand and gravel | 256,000 |
| Slate | 19,000 |
| Stone | 3,127,000 |

In clay products brick takes first place. The common burned brick is still the main factor in the industry; but with it there is the pressed and ornamental brick and the varied forms of terra cotta, from the simple ornament for the brick house to the highly ornate and glazed material out of which some of the most imposing and modern business buildings are being constructed. This latter, however, is not yet produced in Canada to any extent. The common brick is credited with $4,212,000 of the total value of the clay product output, pressed brick $630,000, and the other varieties named some $300,000. Pottery, sewer pipe and tile make up together about $1,300,000. In this department there is a general increase shown, that also was augmented during the past year, and should be during the present year.

## SOUTHERN CALIFORNIA.

San Diego, Cal., Feb. 18.—San Diegans not only preach but practice the gospel of State Mineralogist Aubury, who is doing much practical boosting for all parts of California by calling attention to the fact that this state does not need to go to other parts of the country for building materials.

Mr. Aubury began his campaign of "home products for home people" in a protest against the use of Tennessee and Vermont marble in the Santa Cruz postoffice and in the same connection against the importing of building materials for public buildings anywhere in the state.

The state mineralogist declares that long observation has convinced him that California materials are superior, and that their use would decrease the cost of public improvements. He has sent circulars to the structural material men of California, informing them of the discriminations being practiced against home products and expresses the hope that his appeal will result in an active protest to the supervising architect of the United States treasury department.

### Permanent Exhibit Maintained.

Mr. Aubury was back of the organization recently perfected to maintain a permanent exhibition of California building products in connection with the California state mining bureau and has given the subject of local products for local buildings much time and attention. Brick and tile manufacturing is only in its infancy with every indication for a bright future.

As an indication that San Diegans have taken kindly to the slogan of "San Diego Goods for San Diegans" it may be stated that practically the entire output of the local building products manufactories is absorbed by local builders.

The three brick plants, employing 75 men and turning out 13,333,000 brick during the year, received for their output $100,000.

Though the figures show that San Diego building products manufactories are turning out large outputs, the building activity has been so brisk in the past year that importation of material was necessary. The same condition will assuredly continue in the coming year and in years to come, indicating San Diego as a splendid field for new building products manufacturing enterprises.

From the present indications the making of brick at the Oakland (Cal.) Paving Co.'s immense plant near Decoto will commence about the first of March, when thirty men will begin the manufacture of brick for the erection of two dryers, one on each side of the machinery building.

The California Pressed Brick Co. of Niles, are contemplating at an early date the manufacture of glazed brick, mantel or floor tile. Tests have been made of the clay used by this concern and they have shown that the clays are particularly valuable for the manufacture of wall and floor tile.

Julius Porath, of Detroit, has been awarded the contract for the construction of sewer extensions in South and West Wyandotte.

Clay of good quality has been found near Clare, and a company is being promoted to manufacture brick and tile from it.

## THE SUNNY SOUTH.

Why the brick manufacturers should depend solely upon the New Orleans market when they are in an excellent position to compete with other sections for trade elsewhere, is a matter not easily solved, but such is the case, and when construction work is on the wane in New Orleans, then brick-burning operations may be said to be on the wane in the New Orleans district.

During the past year a considerable amount of public improvements were inaugurated and as a consequence, large quantities of brick were sold, but in most cases the price was a far from satisfactory one, but the bulk of the business in a measure overcame that. However, the leading dealers have predicted that an increase of 50c per 100 will occur by the middle of January and then they claim that the plants will again be on the same profitable basis that they were before the late financial depression stifled building operations and caused a consequential stifling of sales on this market.

A few plants worked but one-half time during the year, but the majority of them worked three-quarters' time, and while they at times managed to turn out an output far ahead of their sales, they have not suffered for it, as in nearly every instance the large stocks that they accumulated in their New Orleans and home yards have been wiped completely out by the demands of the building trade since the beginning of the fall season. Demands of the builders have been met so promptly by the kilns owing to this surplus on hand that they have been materially aided in doing quick work, and consequently were soon ready to take up another job and again order more brick, so that at a glance, it can easily be seen that those kilns that turned out a surplus stock during the dull summer months are the ones who are now the gainers thereby, and the proprietors are no doubt congratulating themselves on their foresight.

The entire industry here is practically controlled by two concerns, the Salmen Brick & Lumber Co., with an output of about 250,000 per day, and the Mutual Brick & Supply Co., a combination of a number of small concerns who have a working arrangement for the pooling of their interests, and maintain one office in New Orleans for the sale of their combined product, which amounts to about 150,000 per day. Of course there are several smaller independent concerns, but their combined output is not great enough to affect the market materially in any direction, and owing to the fact that they have neither the capacity nor the facilities of the two concerns mentioned, they are successful mostly in securing small contracts, and perhaps not a great number of these.

Between the two big rivals, the Salmen people and the Mutual, the former have so far managed to get the bulk of the city business on the largest contracts, having secured the contract for the brick furnished for the newly erected plant of the American Sugar Refining Co., at Chalmette, just below New Orleans. This was the largest single contract ever let on this market and was for 16,000,000 brick. These have all been furnished to the contractors by the Salmens and they are now filling an additional order for 500,000, with the expectation that duplicate orders for like amounts will be forthcoming in the near future because of the fact that additional construction work is still contemplated at the refinery.

A larger order than that for the sugar refinery, that the Salmen people secured, was for 20,000,000 brick furnished to the contractors who are installing the sewerage and drainage throughout the Crescent City, but the contracts for that amount were not all let at one time, having extended over a period of several years, additional bids being asked for from time to time as the need for new material was felt or anticipated. In order to fill contracts of this sort, these people carry a supply of between 600,000 and 800,000 on hand in their New Orleans yards, and maintain and operate a barge line of 8 barges with which to transport their product from their 10 kilns in Slidell, La., just across Lake Pontchartrain from New Orelans to this city. Each barge has a capacity of 110,000 brick or a capacity equal to 10 ordinary freight cars used by the railroads, and they are thus able to bring more brick into this city each day than the Queen & Crescent Railroad, on whose line their plant is situated, will guarantee to do. They are possibly the largest manufacturers of brick in the United States where the output is that of one company, and not that of several combined or affiliated concerns. They, too, are the only manufacturers of pressed brick in the south, and while the soil which they use is not suitable for the burning of red pressed brick, they turn out a buff and mottled brick which is of a quality that can favorably compare with the product of any other section of the United States.

The plants combined under the Mutual Brick & Supply Co. are not so fortunate as the Salmen people in the matter of freight transportation for they are forced to depend entirely upon the facilities of the Illinois Central Railroad Co., on whose line they are located, and are not in a position to use a cheaper water route in reaching their market, but on the whole the rates and facilities afforded them by the Illinois Central are satisfactory, and they can in a great measure compete with the Salmen Co.

The largest "small" concern in this section is the St. Joe Brick Works, located at Pearl River, La., on the line of the Queen & Crescent, and as they have a daily capacity of 40,000, they are to be reckoned with on all large contracts. The Kenton Brick Works, at Hammond, on the Illinois Central, are also fairly large burners, and as they are located but a comparatively short distance from the New Orleans market, are in a position to secure quick transportation and cheaper rates than many of the less fortunately situated, independent concerns. A new factor in the trade that will undoubtedly have to be reckoned with in the near future is the recently organized Day Brick Co., who burned their first kiln during the month of December, and while they are not very formidable at present, they have an apparently bright future ahead of them as the men who compose the company are all experienced and wealthy manufacturers and know the business from A to Z.

New Orleans is essentially a city of wooden houses, probably not over 1 per cent. of the residences being composed of any other substance, and the brick manufacturers are forced to depend almost solely upon construction work in the way of public improvements, or buildings for business purposes. A few apartment-houses have been constructed here and although brick was exclusively used at first, yet within the last year, concrete and wood have taken a firm hold on the builders and they seem to be gradually relinquishing the idea of using brick.

The main reason that dealers and manufacturers are preparing for a good season, and expect to do a larger business at increased prices, seems to be in the fact that many large building projects have been practically assured for the city and other Louisiana towns, for foreign money is again flowing this way, since the last State Legislature removed the tax on outside capital, permitting the free influx of this money so necessary for the city's development, and materially decreasing the rate of interest, thus giving building plans a boost that have started an era of improvements that shows no present signs of letting up, and seems rather to increase in size like a rolling snowball, from month to month, until some of them seem to be so vast that the cynics are apt to scoff at them and call them visionary.

Labor, while not really cheap, can be had reasonably and there is always an abundance of it, for besides the negroes, an extra quota of men when needed can always be recruited from time to time in the Italian quarter of New Orleans, and as this class of unskilled labor is reliable and hard working, they have in many cases displaced the negro entirely, and while the Italian quarter of this city continues to grow with an astonishing rapidity, the Italian brickmakers seem to be growing proportionately. Soil is cheap and ordinary cuts are from 6 to 8 ft. in depth, and at the present market prices of $7.50 for the ordinary product, a fair profit can be realized if the kiln has the necessary capacity to turn out large quantities.

To sum up the outlook, on the whole the situation is most encouraging, and presents evidences of a better condition than has been prevalent for the last three years.

**New Orleans, La.; Salmen Brick & Lumber Co.**—"The demand has been limited and competition strong, and prices exceedingly low. However, we hope that 1910 will produce a greater activity in the building line in our district than 1909 proved to be. Indications are for a slow return to prosperity, and that we may get a fair demand for brick the coming year. Of course, whenever there is a large surplus, prices are demoralized, and when the surplus has been used up, there is a disposition to pay better prices."

Electric City Brick Co., Augusta, Ga., will establish a plant with daily capacity of 60,000. J. H. McKenzie, 262 Broad St., President.

Standard Sewer Pipe Co., Rome, Ga., incorporated with $30,000 capital stock by D. B. Hamilton, Jr., and C. C. Harper has purchased and will continue the Morrison-Trammell Brick Co.

Louisville (Ky.) Sewer Pipe Co., incorporated with $5,000 capital stock by Robert E. Brandies, L. Frankel, F. B. Moss; offices, Lincoln Bank Bldg.

Builders' Brick Co., Hartford, N. C., incorporated to manufacture building brick.

Tennessee Refining Co., Black Fox, Tenn., W. E. Ragdale, manager; will install pressed brick machinery for manufacturing white and enameled brick.

The Parkwood Brick & Foundry Co. has been incorporated at Birmingham, Ala., for $50,000. Baxter Rittenberry is president.

J. B. Elliott is endeavoring to establish a brick plant to be located near Mineral Springs, Ala.

The Gadsden Brick Co., located at Gadsden, Ala., has resumed active operations after an idleness of two years. The conditions in that section are most encouraging.

Fort Smith, Ark.—The Fort Smith Vitrified Brick Co. has received a contract from the Prairie Oil & Gas Co. to supply 1,000,000 brick for use in building pipe lines and pumping stations at Kinta, Okla., and DeQueen, Ark. The line is now being built from the famous Glenn pool field in Oklahoma to the big refinery at Baton Rouge, La. It will require about the same amount of brick for two more stations which will be built on the line south of Fort Smith.

The Gadsden (Ala.) Brick Company, one of the older industrial enterprises of the city, has had a most prosperous season the past year. Something like six million brick have been turned out and all found a ready market. The company is preparing to fire two kilns within the next few days containing nine hundred thousand brick, and all indications point to record-breaking business for 1911.

## PENNSYLVANIA PENCILINGS.

Pittsburg, Pa., Feb. 22.—Statistics compiled for January and February, show a marked improvement in building conditions in the Western Pennsylvania districts. A steady gain is shown over the corresponding term of 1909 and 1910. Builders contend that the best indication that the season will be a good one for the clay interests is the fact that money is so easy, and that the banks have all kinds of money to put out on good securities. Savings institutions give out the same information, and architects relate to the representative of "Brick and Clay Record" that inquiries are very strong, and that many new homes will be built of brick this season instead of from other materials.

Several large out-of-town construction jobs were offered local bidders, among which is the erection of a modern apartment house in Wheeling, at an estimated cost of $25,000, and the erection and completion of a three-story fireproof bank building at Huntington, W. Va., which is to cost about $85,000. Among the larger building operations that will soon be open for bidders is the proposed improvements of the Carnegie Technical school buildings, which are estimated at a total outlay of $1,500,000. The University of Pittsburg is having plans prepared for the erection of additional buildings, for which an appropriation has been made for $350,000, and the Schenley Farms company has had plans completed for the expenditure, in the erection of a number of high-grade residences, of a sum exceeding $50,000.

Bids and specifications are being prepared by the Carlton-Ritz Hotel company for enlarging and remodeling the Hotel Schenley, at a total cost of $350,000, and John McSorley has had plans prepared and will be ready in a short time to receive bids for the construction of a modern apartment house, which is to be erected on Maryland avenue, in the Shady Side district, and is to cost $100,000.

So much for the building brick manufacturers.

A number of new brick and clay industries are being planned for the Western Pennsylvania territory during the coming year, so this will indicate that those having money to invest in this trade are viewing the future with optimism.

There is considerable activity in the Kittanning district, and it is currently reported that one or two new plants will be built there. The demand for the pearl gray brick is increasing, and all plants operating in the Kittanning fields are working steadily.

The capital stock of the Phoenix Fire Clay Co., of this city, has been increased from $5,000 to $75,000.

The Upper Kittanning Brick Co. is using gas for kiln fuel with considerable success, so it is said. Contracts for additional supply of gas have been made.

Fire destroyed the boiler house, machine shop and drying house of the Philadelphia Brick Co., at Philadelphia, causing a loss estimated at $25,000.

A new brick plant is being built at Elwood City, Pa., just west of here, by the Elwood Brick Co., at a cost of $20,000.

These directors have been elected by the Montello Brick Co., of Reading, Pa.: Lambert A. Rohr, A. J. Brumbach, J. G. Mohn, J. B. Fricker, Nathaniel Ferguson, W. W. Light and Howard L. Boas. The authorization of the mortgage indebtedness of $500,000, with which to put the several plants in operation, has been certified.

At Bolivar, Pa., there is considerable activity in the brick manufacturing business. It is declared the production at that point this year will be 100 per cent more than during 1910. At the plant of the recently formed Phoenix Fire Clay Co. the weather has held back the improvements. The company has let the contract for the mining of coal and clay to W. G. Muir and the quarrying of silica rock has been given to Forester Bobbitt.

Interests at Kane, Pa., may form a company at an early date and erect a fire brick plant at Mt. Jewett, Pa., near the property of the Mt. Jewett Clay Co.

With a capital stock of $175,000, the Salina Fire Brick Co. has been formed by Greensburg (Pa.) men, of which M. P. Shoemaker, of Greensburg, is at the head. A large brick plant near Greensburg is to be built.

The plant of the Standard Shale Rock Brick Co., of Youngville, is to be sold at sheriff's sale. The property has not been operated during the last few years.

All brick plants in the vicinity of Monongahela, Pa., are working full time. The Monongahela Clay Co. is working 200 men, while the Tempest Brick Co. is operating with 100 employes and the Courtney Brick Co. is working 100.

Report has it that the plant of the Manown Brick Co., near Monongahela City, Pa., which was destroyed by fire a few weeks ago, will be rebuilt. The fire was the third loss of the character the firm has suffered within three years. The loss is placed at $50,000; the property was owned by the Pittsburg Coal Co.

The National Fireproofing Co., of this city, has bought the Foard farm, near Elkton, Md., and it is said another plant will be built within the coming year.

It is possible that the Ridgeview Sand Co., which was chartered several months ago, will manufacture silica brick ere long. The firm has just installed a rock crusher, which will be operated by a 50-h.p. gas engine. Headquarters of the company are at Oil City, Pa., and in charge of Ralph L. Rhoades and Dr. C. W. Coulter.

The capacity of the Trumbull Brick Co., at Warren, O., is to be increased. New grinding machines are to be installed.

Pittsburg brick salesmen have been advised that the Houston Brick & Tile Co., of Houston, Tex., will erect a mammoth brick plant at Houston at an early date. The capacity is placed at 55,000 brick per day. C. A. Barbour, C. R. Miner and Sinclair Taliaferro, all of Houston, are at the head of the new concern.

After repairs had been completed, the plant of the Reynoldsville Brick & Tile Co., at Reynoldsville, Pa., has resumed operations. The order book is well filled, which insures steady employment to a large force of workmen.

The contract for the new Federal building and post office to be built at Chambersburg, Pa., has been awarded the Conococheague Brick Co., of Williamsport, Md.

One of the neatest brick sample rooms in the Pittsburg district is that just completed and opened by F. P. Cuthbert, who is representing the Toronto Fire Clay Co., of Toronto, O. The new offices are in suite 1520 Oliver Building. The furnishings are very neat and the display wall an attractive feature. Mr. Cuthbert was formerly connected with the brick business in Philadelphia, and he has received a royal Pittsburg welcome among the local sales crowd since he has had his "name on the door." One of the plants controlled by this firm, "The Little Giant," which is located near Toronto, has not been idle a week in sixteen years. Face brick is the product.

Business looks very good with us," declared an official of the Pittsburg Clay Products Co., with offices in the Keenan Bldg. "Inquiries are very good. We are increasing our show space and are preparing in advance for one of the best years in our history."

Brick to be used in the new hotel building at Kaylor, Pa., will be from the Upper Kittanning Brick Works.

Directors of the Harbison-Walker Refractories Co. declared the usual quarterly dividend of ½ of 1 per cent on the common stock, payable March 1 to stock of record February 20.

Machinery for the new plant of the Clydesdale Brick Co., at Elwood City, Pa., is being delivered. Capacity will be 100,000 brick per day.

While on his way to New York from attending the B. B. A. meeting at Louisville, Ky., J. Parker B. Fiske spent a brief season with several brick manufacturers at Ridgeway, Pa. Mr. Fiske was accompanied on his trip to Ridgeway by Thomas W. Pierce, of Boston.

A stock company is being formed at Sharon, Pa., to buy the J. V. Rose fire brick plant, which is located near there. Vitrified shale paving blocks will be made, and the company will have a capital stock of $100,000.

The annual meeting of the Corry Brick & Tile Co., of Corry, Pa., was held Jan. 21, and G. H. Dunham, of Warren, Pa., was re-elected president.

## FROM THE WINDY CITY.

Chicago, Feb. 27.—Evidences of a most progressive year for building are seen now, and the prospects for a big increase in the cost of structural work, during the year, are of the kind that make the brick and clay man happy. Reports from the architects and builders, make it certain that there will be a big year in building, and that the size and number of these structures will be of the kind to make Chicago stand out as a leading center in this respect. Already preparations are under way for a number of skyscrapers, and there are likewise a fair percentage of apartment and residences and factory buildings under way. This is only the beginning of a great era of activity, and one that will be notable.

There is another feature in the business that looks significant, and that is the limited number of inflammable structures that are being erected here. Not only that, but the tendency is strongly in favor of fireproof buildings, and there is a growing sentiment in favor of buildings of this character. As one evidence of this fact there have just been condemned by the building department here thirty-one theaters, all of frame construction.

Exception has been taken to the new building ordinance of this city by W. D. Matthews, superintendent of inspections of Chicago Underwriters' Association. Mr. Matthews is considered an expert, and his opinion is of more than ordinary merit. He maintains that the new ordinance is such as to invite the destruction of much property. This announcement was made several days ago before a meeting of the Cook County real estate board. He asserted that the theaters here were unsafe, and that the Iroquois theater fire was not a lesson that had been conducive of results in making the theaters safe. He also maintains that the new ordinance invites congestion by permitting frame structures to be erected in localities that are already thickly settled.

The following reforms he asserted should be made, so as to make the loss from fire and its attendant dangers less likely: Prohibition of all except fireproof buildings in the downtown district. Installation of high pressure waterworks system. Fire limits made coincident with the city limits. Frame roofs prohibited on all new buildings. Prohibition as to moving frame buildings. Closing of all exterior doors and shutters at night and during Sunday and holidays. The state fire marshal provided with sufficient funds to enable him properly to prosecute work. A state building code. Prohibition of sale and use of parlor matches.

Mr. Matthews stated that the fire loss in the United States and Canada in the past thirty-four years was $4,947,008,175, or an average of $145,500,240 a year.

The clay manufacturers will celebrate in a most fitting manner next year with the big clay workers' exhibit in this city. It will be a most notable stride in the right direction, and one that will be the means of making it possible to do much toward increasing the sale of all kinds of clay products.

The face brick men, here, report that there is at the present time little activity, but the indications are that within a few weeks the demand will make a big increase. They are preparing their plans accordingly.

The Bonner & Marshall Co. report that the situation with them is not very active just now. Mr. Bonner stated that while this was the case at present, the indications looked very flattering. He said that there was no likelihood of any labor trouble, and that the only reason to be assigned for the lull now, was due to the fact that the contractors preferred to wait until the winter had passed before making any material advance. The prospects were fine and there was no reason to look for anything but a very fine year's business.

The Jenkins & Reynolds Co. are doing a fair business now. Mr. White gave as his reason for the inactivity that there was more precaution being taken now by contractors than last winter, and that while building activity would be large and more gratifying this year, that it would be later in making a start. The contractors did not wish to lose money as they did last year. He was sanguine as to the future, and said that it was simply a delay that would be better for the whole industry.

The Chicago Retort & Fire Brick Co. find that there has been a very pleasing demand for their lines. Mr. Reed was gratified over the business done in the past few months, and felt confident that there would be no decrease in the demand for the future. They are operating at their capacity, and are doing all that is possible to take care of the business that has been coming their way. The prospects look most gratifying to them.

The Carey Brick Co. are still at it. They continue to operate their large plant, and are doing a very active business in building brick lines now. The weather has been helpful, and has enabled them to continue operations throughout the winter. They do not see anything but good times ahead for the brick industry, and are getting their share of the trade.

The S. S. Kimbell Brick Co. find things a trifle quiet. Mr. Matz said that there was not much now to make public, but the situation looked all right for the future. The delay was due to the hesitation on the part of the contractors to get started in their work. A change was soon due, however, and there will likely be a move for a greater demand for face brick soon.

The Wisconsin Lime & Cement Co. are doing a very fair business in face brick. Mr. Cormak said that there was no great activity, but a very nice demand. The indications look favorable for the future. They are sure that there will be a brisk demand in a short time.

The Masons' Specialty Co. are doing a fair business in wall and coping tile now. The season is hardly right for anything like a big business as yet, and they are not counting on much for a short time as yet.

The National Brick Co. are doing about the usual business in building and sewer brick that is done at this time of the year. They do not see any reason for complaint, and no cause for any great increase at this time.

The Purington Paving Brick Co. are doing a fair business in paving brick lines, but look for a very active year as soon as the spring weather opens. Naturally at this time of the year there is a limited demand for pavers, but the prospects look favorable for the coming months.

Thos. Conelley says that there has been a fair call for sewer pipe, flue lining, drain tile and kindred lines. The plant of this concern is being operated all the time, and the indications offer a pleasing prospect for more business soon. At this time there has been nothing to make the demand more than ordinarily active. Prices, he says, are too low.

The Western Clay Products Co. has just been organized and incorporated here with a capital stock of $10,000. The company will handle sewer pipe, wall coping, flue lining, fire brick and drain tile. The office of the company will be in the Chamber of Commerce. Those interested are R. H. Green, Streator Clay Manufacturing Co.; Wm. E. Dee, Wm. E. Dee Clay Works; W. J. Gilbert, Indiana Sewer Pipe Co.; H. C. Morrow, Whitehall Stoneware Co.; W. H. Bassler is the sales manager.

The American Terra Cotta & Ceramic Co. are doing a fairly active business now. Mr. Crowe said that the situation was not as pleasing as it might be, but that there was likely to be a change for the better in the near future. They are operating about as usual at their plant. The demand for terra cotta and other lines had been rather inactive of late, but no more so than is usual at this time of the year.

## WEST VIRGINIA.

Wheeling, W. Va., Feb. 27.—So far this year over $25,000 worth of paving contracts have been awarded to West Virginia contractors, and the largest two have been secured by Freshwater Bros., of Chester, W. Va. One job calling for the expenditure of $50,000 has been secured in Cleveland, O., and another for $200,000 has been secured from the city of Huntington, W. Va. With such street paving contracts as these being awarded, the paving brick industry should thrive this season, for these two are only a forerunner of what may be expected from other parts of the country.

The Columbia Tile Co. is getting ready to operate at Grafton, W. Va. The concern has been chartered with $150,000 capital stock.

Work has been started on a one-story brick plant at Clarksburg, W. Va., for the Clarksburg Brick Works, from private plans. The plant will cost, completed, about $15,000.

At Mt. Savage, Md., an addition is being built to the plant of the Ramsay Enameled Brick Co.

Stockholders of the Queen City Brick & Tile Co. met at Cumberland, Md., and elected these officials: President, W. C. White; secretary, C. C. Hetzel; treasurer, F. A. Blaul.

The West Virginia Fire Clay Co., at New Cumberland, W. Va., has started to double the capacity of its plant, by erecting an addition covering a site 60 by 120 feet, installing new boilers and a 350-h.p. corliss engine.

With a capital stock of $5,000 the Clay Lands Co., of Olive Hill, Ky., has been formed by J. L. Tabor.

A West Virginia charter has been granted the Chesapeake & Ohio Clay Products Co., of Washington, D. C., which will manufacture brick and other clay products. The capital is placed at $75,000. Samuel B. Cooke and Allen C. Clark, of Washington, D. C., are at the head of this new concern.

Operations have been resumed at the plant of the Keyser Pottery Co., Keyser, W. Va.

Additional machinery and a 150-h.p. engine will be installed in the plant of the Pierpont Brick Co., at Salem, Va. Improvements are now under way.

Brick manufacturers, not only in West Virginia but in neighboring cities, are greatly interested in the outcome of the action of the Mack Manufacturing Co., of Philadelphia, Pa., against the "Pan Handle" Railroad Co. The plants of the Mack company are in the New Cumberland district.

The official notice of this action by the Mack company reads: "A claim for $23,938 was presented last week to the Interstate Commerce Commission by the Mack Manufacturing Co., of Philadelphia, against the Pittsburg, Cincinnati, Chicago & St. Louis Railway, as reparation on alleged excessive charges for the transportation of paving brick from various points in central traffic association territory to eastern destinations. The rate charged the complainant was 22½ cents a hundred pounds. Subsequently the railroad reduced the rate to 21 cents a hundred pounds. On all shipments bearing the 22½ cents rate, the complaint asks reparation under the declaration that the higher rate was excessive and unreasonable."

The Acorn Brick & Tile Co., of Albert Lea, Freeborn county, Minn., came to West Virginia for its charter. The capital stock is placed at $500,000 and the company is headed by Belcher H. Ward, of Fairmont, Minn., and John M. Wolf, of Minneapolis, Minn.

Frank A. White has been made president and general manager of the new Easton (Md.) Brick & Tile Manufacturing Co., which was recently formed with $25,000 capital.

At the annual meeting of the Savage Mountain Fire Brick Co., at Frostburg, Md., the following officials were elected: President, Charles C. Gorsuch; vice-president and treasurer, John A. Caldwell; secretary, H. C. Gorsuch.

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Fire destroyed the plant of the Marion (Ala.) Brick Company, located south of the railroad. The plant had been established about five years, during which time it had changed management several times. It is owned by the Marion Mercantile Company and was partially insured.

## AUSTRALIAN NOTES.

Mr. Allen Taylor, managing director of the Auburn Brickworks, Ltd., has purchased a large freehold property in the Ryde district, N. S. W. He purposes erecting a modern brickworks at once, with direct rail connection and deep water handling facilities. The position is unequalled for economical production in and around the metropolitan area, and the water facilities will be a potent factor in dealing with river or harbor deliveries.

The city council of Brisbane has been authorized to borrow a sum of £115,000, of which £20,000 is to be expended on the construction of a block of brick warehouses and offices, with the necessary fittings.

Despite the coal strike, despite the hesitation of enterprise owing to political difficulties, the phenomenally prosperous march of Sydney construction is unchecked. The work of the past year in the construction of Sydney has topped all previous great records. In brick the turnover in the metropolitan area only equals that of last year, reaching about 130,000,000. This is considered very satisfactory considering the strike, whoch prominent makers affirm reduced the supply by 12½ per cent on the year's turnover. Terra cotta increased 30 per cent over amount used last year.

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### THE OUTLOOK IN DETROIT.

Detroit, Mich., March 1.—Contractors and manufacturers of builders' supplies, in different parts of the city, are quite confident that 1911 will be a record year in building operations in Detroit. Although still several weeks until the opening of spring, the usual time for the beginning of the building season, contractors are already busy with new work, and the probabilities are when the rush does come, it will be difficult to meet demands on time. Brick plants in various sections are running strong and will continue doing so through the spring and probably the summer months. There have been no changes in quotations on brick, but the active building season will probably strengthen the market considerably. A majority of plants in this district are now manufacturing either the common clay brick, or the sand lime product. A number of new clay beds will be opened during the spring and summer, and various companies are planning to extend their operations.

"People are doing a lot of figuring and there is bound to be a record business in 1911," said Albert Albrecht & Co. "There is already considerable inquiry for contracts, prices, etc., and it is hard telling just what will come when spring opens. The building is not confined to any particular locality. Great numbers of houses are being put up, and, of course, many of them are either of solid brick, or brick veneer construction.

There will be a big change in the sky-line in the downtown district in 1911. The Dime Savings Bank Co. will probably start work on its proposed twenty-story building, which will be located at Griswold and Fort streets, in the heart of the banking district. The Peninsular Savings Bank will put up a new bank building on Fort street, while Hunter & Hunter's old store, which was burned some time ago, will be rebuilt, and raised to eight stories to conform with other business blocks on Woodward avenue in its vicinity. The Benson store, recently purchased by J. L. Hudson & Co., is being partly torn down, prior to raising it to nine stories. This is the work already in hand, so it can be seen that with the other that must come, we will have plenty to do."

Aside from building in the downtown district, a number of important factory additions will be made during the spring and summer. In the different motor car plants, the needs of extensions is being felt, and plans are now being prepared to carry out this work. A number of church organizations, as well as societies, have planned important work, and expect to continue it through the spring months. Notable among these, is the new hall being put up by the men of Holy Redeemer church, at a cost of $150,000. The Knights of Columbus have recently completed an expensive temple on Woodward avenue, while several Presbyterian, Methodist, Catholic, Congregational, in fact churches of all denominations have been and are putting up new edifices. In a majority of cases, brick has been the principal constructive material.

"Our plant is operating steady and we are anticipating a good business in 1911," said Burke Bros. "We are now manufacturing from 60,000 to 70,000 brick per day and will keep running on this quantity, through the spring months. We anticipate an excellent building year in Detroit, and preliminary work seems to strongly warrant our belief."

"We have no complaints to make regarding conditions, and we certainly believe that Detroit will have the best building year in its history in 1911," said the Clippert Brick Co. "There is already an active inquiry for brick stocks. February has been a better month for business than usual. The extension in building lines is along general plans. The city is extending its limits, factories are erecting additions, and store companies are extending their buildings. There is no doubt but that brick will be the important building material."

Considerable discussion was raised in official circles, in Detroit during the past month, over the assertions of dissatisfied paving brick contractors relative to the methods used in purchasing paving brick in Detroit. The dissatisfied ones declared that to get in on the city contracts bidders had to have a "pull." Their charges were officially investigated by the mayor, and he recommended to the commissioner of public works that "rattler tests" be made of each lot of brick purchased. Heretofore, the commissioner has relied on the reputation of the company furnishing the brick. The mayor's recommendation to the common council that the commissioner be authorized to purchase a specific number of brick, 500,000 per annum, was also accepted.

The present brick contracts contain a clause which calls for 1,000,000 brick, "more or less," and it was the contention of the brick contractors who complained that while a contractor may be successful in bidding, he may not be called upon to furnish a single brick under the wording of the clause.

Representatives of the Detroit Brick Sales Co. held a long conference with the mayor. The contractors claimed that their contract, notwithstanding the fact that it was three cents lower, per yard, than the other bidders, was rejected by the department of public works. The brick representatives made several strong statements, but they did not think the mayor backed them up adequately. The mayor in his message to the common council said: "I would like to call your attention to a matter I trust you will take up in due time, in order that it may be inserted in next year's contracts, and that is to examine into the advisability of inserting in the proposals in addition to a thorough test clause, the assurance that every successful bidder will be given an opportunity to furnish at least 500,000 brick.

"Brick manufacturers are now under the impression—and there seems to be reason for this contention—that under the clause, 'A million or less,' while they may be successful in bidding, they may not be called upon to furnish a single brick, and I am under the impression that after having gone into the matter thoroughly, that the 500,000 minimum clause would result in greater competition, and that we will have two bidders, to one at the present time, because bids will be placed with the knowledge that brick will have to be furnished."

Leebrich Bros., of Midland, will erect a block and tile factory in that city. They will employ ten men.

The Builders & Traders' Exchange held its annual banquet in the Hotel Cadillac, Feb. 10. Governor Chase Osborn, of Michigan, and Edward A. Roberts, secretary of the Cleveland exchange, were the principal speakers of the evening.

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### RECENT FREIGHT RATE CHANGES.

Lake Shore & Michigan Southern. Sup. 1 to I. C. C. A-2539. Clay or shale, C. L., to Joliet, Ill., from Cleveland, Collinwood and Wickliffe, $1.65; Youngstown, Hartford, O., Sharon and South Sharon, Pa., $1.75; Franklin, Oil City, Sandy Lake and Stoneboro, Pa., $1.95 per net ton; effective September 15th.

Lake Erie, Alliance & Wheeling. Sup. 3 to I. C. C. Y-259. Clay or shale articles, to Joliet, Ill., from Dillonvale, O., $1.85; Palmyra, O., $1.75, and Alliance and Minerva, O., $1.65 per net ton; effective September 15th.

Raritan River R. R. I. C. C. 1778. Brick from stations on Raritan River R. R. to Northumberland, Pa., $2.30 per net ton; effective September 20th.

Erie Road. Sup. 1 to I. C. C. 8137; Sup. 1 to Trf. E. R. 9990. Brick, C. L., from stations on the Erie & Mt. Jewell, Kinzua & Riterville R. R., to points on Northern Central; effective September 23d.

Southern Railway. I. C. C. A-3899. Fire brick, C. L., from Clayville, Va., to Charleston, S. C., 15 cents; fire and clay brick, C. L., from same point to Fayetteville, N. C., 15 cents; L. C. L., 20 cents; common or pressed brick, C. L., from Clayville, Va., to New Orleans and Port Chalmette, La., 20 cents; effective September 19th.

Western Maryland R. R. I. C. C. No. 3288; Trf. P. S. C. No. 17. Brick (except enameled), C. L., from Frederick, Md., to Hagerstown, Md., 50 cents per 2,000 pounds; effective September 24th.

Hocking Valley R. R. Sup. 8 (cancels Sup. 6 and 7) to I. C. C. 1362; Trf. Sup. 10 to B-1495. Brick, building and paving, fireproofing, etc., from Hocking Valley stations to points in Central Freight Association territory and western termini points; effective intrastate September 3rd, intrastate September 24th. Issued by H. I. Wasson, G. F. A., Columbus, O.

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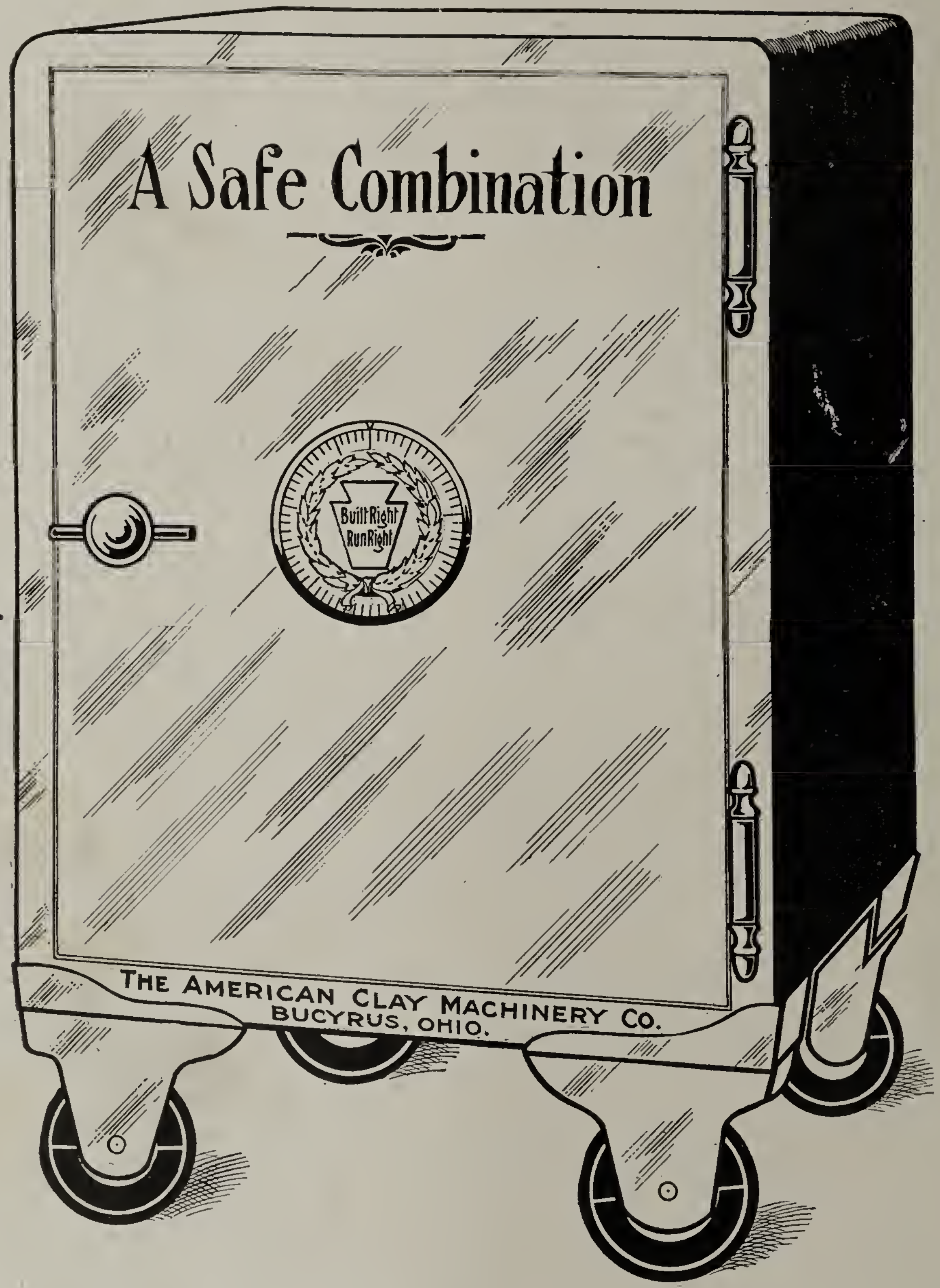
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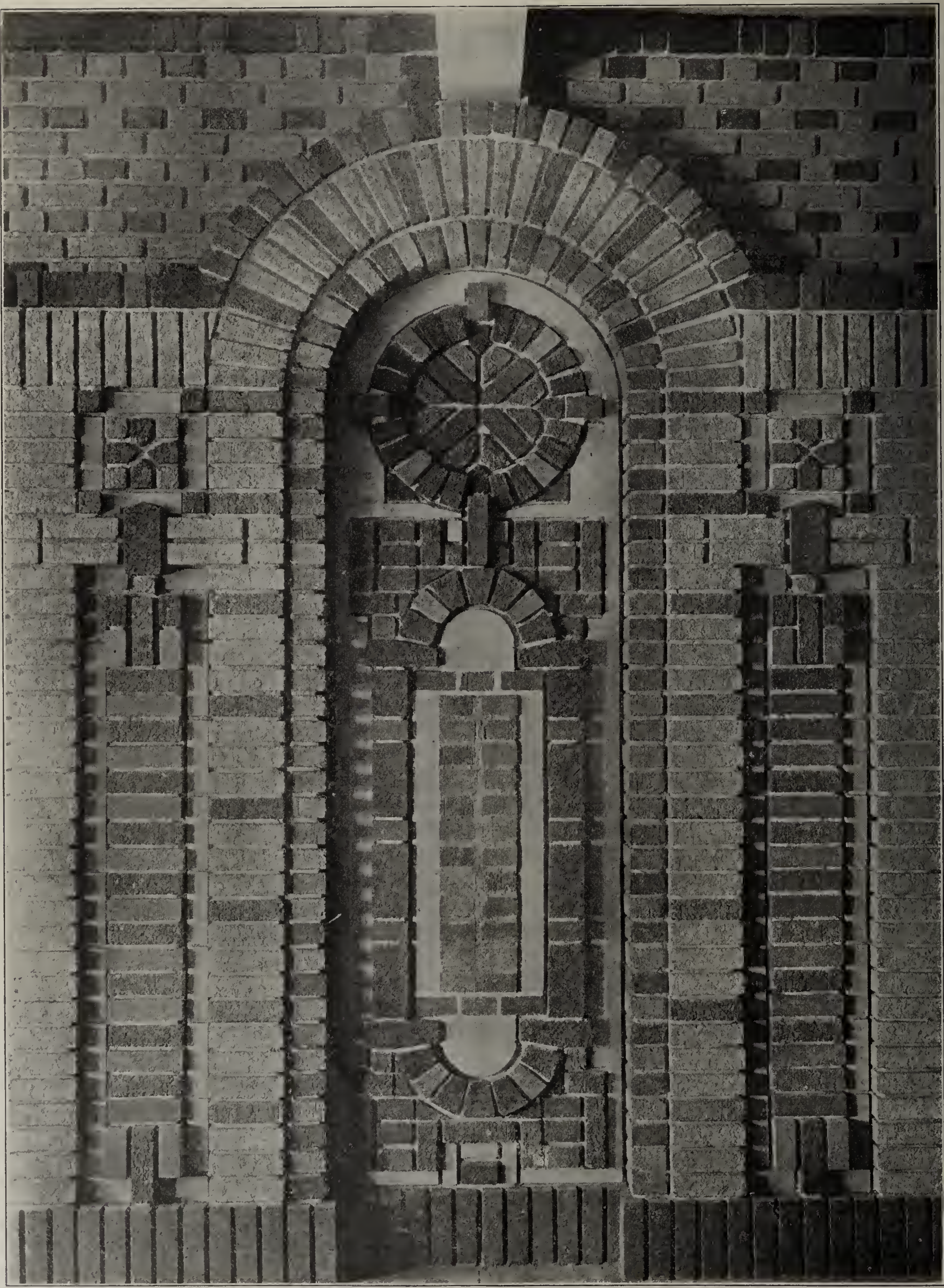


An Artistic Panel Exhibited in the Display Rooms of Fredenburg & Lounsberry, New York City, Illustrating One Method by which the Beauties of Modern Brick will be Shown at the Clay Products Show Next Year

VOL. XXXVIII—NO. 6

BRICK AND CLAY RECORD

MARCH 15, 1911

# BOOSTING CLAY PRODUCTS

## Important Addresses by Prominent Clay Men Regarding Promotion of the Brick Industry, Delivered Before Recent National Conventions

The following interesting paper on the subject "Building Brick as a Factor in National Conservation," was read by E. F. Knight, of Bradford, Pa., before the recent convention of the National Builders' Supply Association.

"Once upon a time in a far off country there lived an old pig with her family of little ones, and finding that she was unable to properly care for all of her family, she selected the three eldest, presumably the wisest, and instructed them to go forth and root for themselves. The three little pigs, after saying good bye to home and friends, went out into the world, even as you and I, and the story goes: The first little pig met a man with a load of straw, and he said "Please, man, give me that straw to build me a house with," and the man did, and the litle pig built him a house of straw, and by and by a wolf came to the door. He said, "Little pig, let me come in," and the little pig said "No, by the hair of my chinny chin chin." Then the wolf said, "Then I'll huff and I'll puff and I'll blow your house in," and he did, and he ate up the foolish little pig that had built his house of straw.

And the second little pig going forth met a man with a load of boards. He said, "Please, man, give me those boards to build me a house with," and the man did, and the little pig built him a house, and by and by the wolf came to his door and said "Little pig, let me come in," and the sad story was again repeated, and the foolish little pig number two was no more.

But the third little pig was a wiser pig. He passed up the man with the load of straw and the man with the boards, and finally met a man with a load of brick. He said, "Please, man, give me those brick to build me a house with," and the man did, and the little pig built a house of brick, and by and by the wolf came to his door and said, "Little pig, let me come in," and the pig said "no," and the wolf said, "Then I'll huff and I'll puff and I'll blow your house in," but he found that while he had been able to prevail against the house of straw and the house of boards, the good old house of brick withstood all of his assaults, and the little pig was able to live out his life to a good age in his house of brick. Now, when this story came to the ears of the king, he issued a royal decree, ordering that when this little pig became of age he should not be known as a "Common Hog," but be allowed to write after his name "W. O. P." which meant "Wise Old Pig."

Brick Not Only Lends Itself to the Most Artistic Uses, but is Utilized to Advantage Where the Effect of Strength and Substantiality is Desired. For Example, the Massive Walls of the New Massachusetts State Armory in Boston as Shown in this Illustration.

I never read this little story without thinking that there is a lesson in it for the people of America, and for you and me.

A young married couple moved to Montana immediately after their marriage and began raising cattle. As the man was industrious, he prospered and soon he and his wife were able to build them a home. There being no brick man on the ground they built their house of wood, and when the house was completed the husband left on a business trip to Chicago.

One morning the neighbors noticed the house in flames and though every man in the vicinity rushed to their assistance the house was in ruins before they could arrive.

The poor woman was found in the yard wringing her hands and crying, "Oh just think of our beautiful house with the new dining room table and the new carpet in the sitting room and the new pictures on the wall, and I had the picture of Peter and the Apostles and the Virgin Mary, and they are now all burned up and gone to Hell and not a dollar of insurance."

At the present time we are more or less familiar with the campaign being conducted for the conservation of our National resources. This country has been blessed with such wonderful National resources that we have had no appreciation of their value and have gone about our business like a drunken sailor. For every dollar's worth of value which we have utilized we have wasted two, and the big problems with which we are now face to face are caused by this wasteful policy. But if there is one thing of more importance at the present time than another, it is the conservation of our present forests. All of you can remember the day but a few years ago when lumber for building operations was cheap and plentiful, and you all know what the prices are to-day. This condition is, of course, due to one thing, the rapid disappearance of our forest reserves. Each one, who gives this matter a thought cannot but be appalled and ask himself, "What can I do to prevent a further useless depletion of our standing timber."

You are all doubtless familiar with the effort being made by public and private interests to reforest lands now barren, but many years must elapse and millions of dollars must be spent before we could even begin to realize the benefits which we have lightly thrown away. It is not too late to take some steps which will conserve the standing timber. Does it not seem absurd and foolish to spend so much time, energy and money in planting new forests, when the same attention given to the forests already standing will preserve them for ourselves and our posterity.

The government is already moving actively in this direction and in the forest preserves already set apart by the National Government have forest rangers, whose business it is to protect the timber, but the greatest menace to our present forests is the profits that can be realized and are being realized by the lumber manufacturers.

How long do you think that the present indiscriminate raid on the forests would continue if the demand now made for lumber should be cut in two. This brings us face to face with our own particular interest in the matter. The report of the United States Geological Survey entitled "Forest Products for 1908" shows the following table concerning the percentage of lumber consumption for the United States during the year: Furniture, .17; boxes, .086; railroad transportation, .07; implements and vehicles, .048; ship building, .016; miscellaneous, .01. Total of the above items, 40%. The remaining 60% is used in the construction of buildings, and I think that you will doubtless agree with me when I state that probably 75% of the amount now used in that trade could be saved if we were to stop building wooden houses and use instead non-combustible materials such as brick, stone, terra cotta, iron, steel and cement. Just imagine for a moment what it would mean to us if we were able to bring about such a condition, which according to statistics would increase the sale of face brick 500%, and, my friends, I am here to state that we can bring about such a condition if we are willing to use the arguments at our hand. We cannot dodge the evil effects on us as a nation and to ourselves as individuals, if we allow present conditions to continue.

Aside from the destruction of our forests let us look at the matter from another angle. I suppose that every man here carries insurance on his buildings, and if there is a monopoly existing at the present time in any industry, there is in the insurance business. Let us not curse the insurance companies for taking advantage of our position, but rather let us see what can be done to make unnecessary the enormous insurance premiums, which we are now paying.

A recent report of the State Department contains a well written statement by Council Jos. L. Brittain, of Prague, Bohemia.

He says that in the last three years the loss from fire has been less than $20,000 annually in that city and that it has been fifteen years since a life was lost by fire. In the ordinary American city of half a million population, the fire loss would average at least $1,000,000 a year while the deaths from fire would have been numerous.

Prague's immunity from loss is chiefly due to the superior construction required by law, the careful habits of the people and the responsibility that fire damage entails upon the owner of property. Most of the buildings are of brick or stone with tile roofs. The hallways are usually of concrete, the stairs of stone, and the kitchen floors are built of concrete with tile wainscoting.

The erection of hazardous buildings is not permitted, and when a man is so unfortunate as to have a fire, he is looked upon as an offender in the eyes of the law and is held responsible for any damage that may be done to adjoining property. The per capita fire loss of $3.00 in American cities as compared with such a record as this shows the enormous price this country is paying, both in life and property, for its hazardous construction and general carelessness.

But look upon the reverse of the picture. If nothing extraordinary happens, no abnormal conflagration (the Baltimore and San Francisco fires were but two years apart) our year's fire losses will total up about 1,700 people burned to death, 165,000 buildings destroyed and $280,000,000 worth of property destroyed. The insurance companies recoup us in part for the loss, but we pay them $3.00 in premiums for every dollar we get out of them. and then our fire departments, water supply, and such items cost us $300,000,000 more in total a net loss or cost of $546,000,000 for fire. If the billion dollars expended in new buildings means progress, this terrific loss represents "retrogression, asinine folly and gross stupidity."

Think of it, in this year of grace, in this splendid country where we have non-combustible materials at lowest cost and where we claim that most people are superlatively intelligent, over 61% of all new building done was of wood, actual fire-traps, tinder boxes, fresh fuel for fire.

The insurance people are not really anxious for good buildings, large conflagrations hurt them, but ordinary fires are profitable to them; our cities are afraid to pass too stringent laws compelling good construction, and our people are so accustomed to second and third rate buildings, kindling wood affairs, that they really have the notion that that is the way to build, and there you are.

We must constitute ourselves counselors to the American people and see that every prospective builder is made aware of the folly of wooden construction, and is shown that his home can be built of brick, at first cost but slightly higher than wood and should be convinced that the increase in value of his lot will be much more by the erection of a brick house than of wood. The Building Brick

Association of America recently conducted a competition with the purpose in mind of ascertaining the comparative cost of a brick house and the studded house with clap boards, and the result was interesting to any brick maker or brick dealer. In New England, lumber is still much cheaper than in other portions of the country, owing to water routes, and the forests of Maine and Canada, while face brick is comparatively dear, yet the average of the ten bids show the cost of the brick house faced with face brick to be but 13% higher than a studded wall, while comparing the two most favorable bids a difference of only 10% in cost is shown.

How many people would continue to build of frame if they knew these facts?

I have taken your time to-day, discussing how this matter should appeal to us from a public standpoint; and I now desire for a moment to call your attention to our own peculiar position regarding the reform which I have advocated. It is not often given to the trade or a profession to be in such a fortunate position as we are placed, not only is it our duty to bring before our neighbors the folly of continuing the construction of residences built of combustible materials, but our own profit lies in just such an action on our part.

Brick the Most Popular Building Material in Chicago. Illustration Shows New Refectory at Lincoln Park Faced with "Oriental" Brick Furnished by Bonner and Marshall Co.

It is my belief that every dealer in brick, mortar, lime, etc., should have such arguments as these at his fingers' ends. He should make it a point to keep in touch with every operation coming on in his territory and having learned of such an operation should never rest until the owner is convinced of the wisdom of using non-combustible material. Let us make a noise about our business. I recently noticed a postal card on which was printed the following: "When a duck lays an egg, she waddles away and says nothing, when a hen lays an egg, she immediately proceeds to make a great noise about it. Hence the great popularity of hen's eggs."

The dealer, who is content to sit in his office and wait for his customers to come to him with the business, will not last long in the modern competitive conditions. I am more or less familiar with the conditions that exist in your business. I have, for instance, in my mind the example of a man who has been in this business for many years. His idea of doing business was to keep a stock of mason's materials on hand and to serve those who might come to him looking for such materials. He has been in business for many years and has but little competition, yet he has not prospered as he should have done, because he has failed to take advantage of his position. He has allowed his neighbors to continue building fire traps, when a word from him might have caused them to have built more wisely with consequent advantage to himself.

The average man upon deciding to build has very little idea of the facts with which you are familiar. His father, his brother and his neighbors have always lived in wooden houses. He has the idea that the construction of a brick house means a much greater expenditure than the cost of building of frame.

Here is the opportunity for the manufacturer or dealer of non-combustible materials. The Building Brick Manufacturers' Association is ready to furnish all, who are interested, booklets with plans showing that the cost at the present time of frame building is but slightly cheaper than the cost of brick construction.

The high prices of lumber cannot fail to assist in proving your arguments, and I hope that all of you will go home from this convention with a determination to do all in your power to bring about a reform in our methods of building.

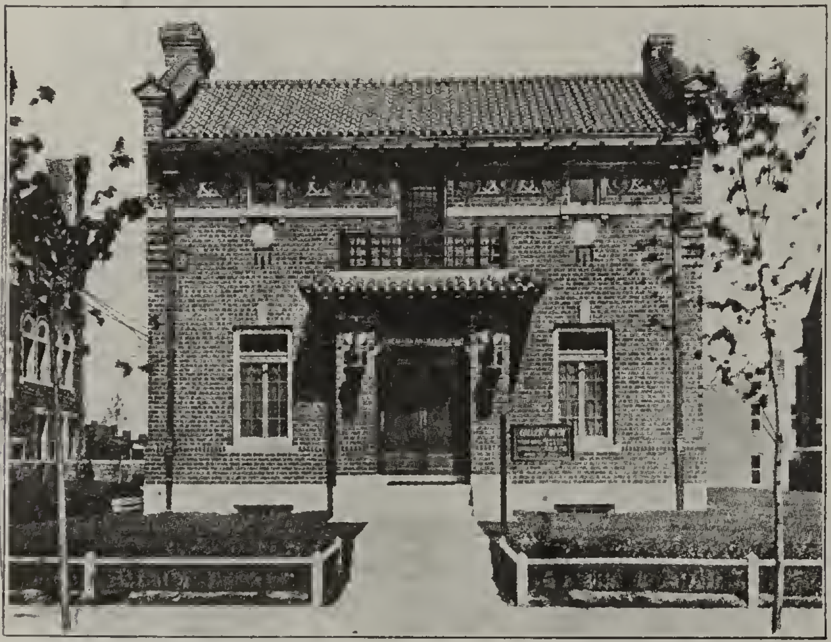
"Rome was not built in a day," nor can we hope to bring about the above desirable condition at once, but natural causes are already assisting us, and it would be worse than folly not to take advantage of them.

When you get back home make up your mind to keep in touch with the building operations in your territory as fast as they mature. Do not be satisfied to accept an order for a few hundred brick for chimneys with perhaps a few hundred more for mantels, with a few barrels of lime, but determine rather to attempt to so influence the prospective builder that he will build more wisely and will be coming to you for all the materials which will enter into his completed home.

The opportunity is yours, but energetic work and patience is required.

The manufacturers of the country are eternally looking for the man, who can get the business in their respective localities. Not only are they looking for such persons, but they are ready to co-operate with them and asist them in every way to produce such results.

The Building Brick Association of America is an association of about 250 of the leading brick manufacturers and brick sellers of the country. It is the intention of this association to conduct an advertising campaign in the magazines of the country, calling the attention of all prospective builders to the value and virtue of building brick in the construction of their homes. Booklets and pamphlets will be distributed, setting forth the reasons why brick should be used, and this organization will only be too glad to co-operate with you in bringing about this great reform.



A Handsome Brick Structure of Moderate Cost, the St. Louis Artist's Guild on Union Ave., St. Louis, Mo.

By persuading your customer to stop building wooden houses you will assist the great work of conserving our forest reserves, will decrease the great fire loss and attendant loss of life with which we are cursed, and if you can get him to use brick instead, you will in the first case double and treble your own business and will have conferred a positive and lasting benefit upon him.

Brick is easily adapted to any building condition, lends itself readily to the architect and builder who may desire individuality in his creation and is at once the most modern and the most ancient of building materials.

"Granite disintegrates and crumbles into particles of mica, quartz and feldspar. Marble soon moulders into dust of carbonate of lime, but hard, well burned clay endures forever in the ancient landmarks of mankind."

---

B. F. McCowen and J. E. Tarner have made application for a charter to establish a large brick plant near Augusta, Ga. It is expected that the new plant will have a capacity of 1,000,000 brick per day. The capital stock of the concern is $75,000, with privilege of increasing to $100,000.

## THE MISSING LINK IN THE BRICK BUSINESS.

Paper Read by R. E. Sunderland, Omaha, Neb., Before the Annual Convention of the N. B. M. A. Recently Held at Louisville, Ky.

The greatest force that is working upon the minds of men today is publicity.

Publicity begets knowledge, knowledge is truth and truth makes men masters.

Publicity is the friend of right and the foe of wrong; it makes the good prevail and the bad retire; it is the greatest producer of righteousness.

Publicity is prevention, an ounce of which is worth more than a pound of cure.

Upon publicity is the nation depending to right its wrongs.

Publicity removes temptations that have been causing the downfall of men in all departments of life; it is forcing men to look before they leap. Thus right conduct, honorable acts and worthy accomplishments are taking the place of regret and remorse.

Publicity has revolutionized business. It is the world's great highway to business success, and many there be who have passed that way.

Publicity is all of this and more. Yet my topic is "Publicity—the Missing Link."

But it is missing today only in those places where its value has not been recognized. It is the letter "x" in the algebra of the brick business. It is the unknown quantity, the mystery which may explain the success of your competitor and your own failure.

Failure, did I say? Yes, failure to meet your opportunities to the fullest extent. Yours, Mr. Individual Brick Man! Yours, fellow members of this association!

Indeed, it is only too true, my brick friends, that "publicity" is an almost unknown word to you, and that you are today asleep to its burden of riches for you.

And what is it that arouses you from your slumber? It is the rush and rumble of a thousand carts; it is the roar of a hundred freight trains; it is the hum of scores of factories that are busily employed in a competing industry at your very doors.

If you should ask me to name the biggest word in the dictionary and the most important word in our commercial language, I would say, without any hesitation, "Publicity."

"Publicity" is a convenient; economical and effective vehicle for facts, for information, for knowledge; a vehicle with immediate access to every enlightened mind within the borders of our nation.

Put "publicity" at work for the accomplishment of some worthy reform, either local or national, and sooner or later the result will be attained. Employ "publicity" for the exploitation of a city, a state or a section, and you may bank on it there will be a movement of people and money to the promised land.

"Publicity" is the strongest link in that chain which binds together the various elements of society.

The surest cure for labor troubles is "publicity." Make it known to your men that you recognize your own right to run your own business, make it known that you know better than they how to manage your own business; make public the fact that all brickmakers in your part of the country are standing erect, side by side, prepared to defeat injustice, but determined to give the square deal, and that in liberal measure, and publicity will thus help you as it has been helping others.

"Publicity" breaks down barriers between people who have not understood each other. It brings strangers into close and valued friendship. It reveals the traitor and the scalawag.

**"Publicity" Has Been Doing Everything But Sell Brick.**

Publicity has carried to success unnumbered enterprises and industries, and yet we have not given it a chance to sell brick. Publicity has been pleading in vain for employment in the brick business. We have almost entirely ignored the importance of placing the merits of brick before the public.

I assert that this great potential power which spells accomplishment and is revolutionizing commerce, government and society, is an almost unknown element in the brick business. Think of it! "Publicity," the strongest link in the whole chain of human achievement, is yet the great missing link in the brick industry.

Why did we not meet and answer this question ten years ago? What have we been waiting for? Does the brick man say, "All things come to him who waits?" Surely he has done his waiting patiently and well.

We are sometimes asked, "Does advertising pay?" And do we not occasionally ask the same question? Are purchasers actually influenced by advertising? Name me fifteen articles that you buy somewhat regularly and I will show you that ten of them are widely and constantly advertised. How about that hat? Those shoes? Your collars, shirts, underwear? That suit of clothes? (No reflection, gentlemen, for I, too, am wearing one of that kind.) What is your favorite brand of cigar, soap, baking powder, coffee? Do you buy known or unknown machinery? Are you not influenced to a certain extent in all of your considerations by the effect of somebody's advertising?

Take an inventory of all the purchases you make and tell yourself, if you will not admit it to me, how few of them include obscure, unheard-of, unknown articles.

Now put yourself in the place of the prospective builder. What materials are offered? You have heard much about cement or "stucco" construction. You have seen many illustrated booklets of shingle-covered bungalows. But what have you read in favor of brick construction?

You know the answer. Brick is the last material to be considered (if it is thought of at all), because the pros-

Handsome Minneapolis Structure, the Pence Automoblle Building, the Brick and Terra Cotta Being Furnished by the Hydraulic-Press Brick Co.

pective builder has not learned the truth about brick. Right here is the missing link between the owner's building fund and the brickmaker's bank account.

For every one hundred dollars spent to tell him about the other materials not more than a single dollar has been invested in brick publicity. The natural result is that he does not use brick, and can you blame him?

Why should a brick manufacturer have to be urged to advertise his wares? Is it not indeed inconsistent and illogical?

We fight off like a pest the solicitor who attempts to open our half-closed eyes to the value, the indispensability of advertising, yet we write a personal letter of thanks to some acquaintance who may have casually suggested to a prospective builder that he consider the use of brick.

We spurn the use of the printed appeal in behalf of brick and yet we find time, money and inclination to come here to confer and resolve and mourn together because brick as a building material has been losing its hold.

It is not necessary for me to exaggerate nor make rash statements, for the bare facts are sufficient to bring us brick men to our senses in regard to the overwhelming importance of making our product known and desired among men.

Brick would today be the ranking and the popular material if, when the public began to take notice of cement, the brick men had entered with heart and mind and money into an organized campaign of publicity, following the wise example of those in charge of the competing industry.

Millions of money have been spent in advertising another material, and that material has taken hold of the builders of the nation like magic, and that self-same competitor is sending the cold chills up and down the spine of every brickmaker who realizes the present condition of affairs.

More money, many times over, is invested in brick plants than in cement plants, and yet we are in the humiliating attitude of allowing our market to be advertised away from us into the hands of those enterprising, far-sighted business men, who control the cement business of the country.

What are we doing to save to our industry that place of prestige and importance to which it is entitled? How much money are we putting into this, the most important part of every business, the publicity department? The amount is so small as to be unworthy of mention—so small as to make us ashamed of ourselves.

Where were we brick men when American home builders began to tire of frame construction? We were "asleep at the switch," and that is where we are today in the selling end of the brick business.

Where were our competitors? They were "on the job." Where were their allies, the metal-lath and the waterproofing people? They were "on the job." Where were the artistic designers of houses? They were "on the job," their pockets filled with cement literature, their desks and walls a labyrinth of "stucco" photographs and their libraries bursting with periodicals and books about cement.

Why did not the public mind turn to brick? Simply because no invitation was issued; nobody explained the merits and beauty of brick; nobody defended brick; nobody reminded the public of brick.

I repeat, gentlemen, that the great missing link in the brick business is publicity. But the link can yet be forged and put into the chain. Shall we heat the metal and put the steam hammer into operation or shall we complete the trench, now partly dug, and bury ourselves in it?

The difference between a rut and a grave is merely one of size. We are in a rut. Shall it become our commercial grave?

I take it to be admitted that the brick industry has suffered immeasurable money loss through the substitution of other material. And we may as well include in the general admission the fact that this loss has not been due to any degree of incompetency on the part of brick as a worthy material.

We are forced to admit these propositions, viz.: That brick has lost tremendously. That this loss has occurred in spite of the fact that brick is a better material than those which have been used in its stead. That brick has lost in spite of the fact that it is and always has been an available material. That brick has not been displaced to any large extent because of disadvantage as to cost.

Here, then, is the startling fact that brick has suffered incalculable loss, and arrayed against this fact are three ample reasons why the loss ought not to have occurred.

We need not spend much time writing or reading obituaries, but from the past we should learn lessons which will be of value in determining our present and our future course.

I would not present a picture intended to portray the brick industry as one whose lifeblood is slowly oozing away; nor should the impression prevail that prosperity is unknown to those whose capital is invested in the brick business. Poor indeed would be one's discernment if he should fail to read success and prosperity in the strong countenances, the happy expressions, the keen eyes of the brick men in this convention assembled.

But when we think of success do we define it as the absence of total failure? Are we true to life's fullest meaning if we merely ward off disaster? Are we making the utmost of our present opportunity to build up the entire brick industry as well as our own individual business? Are we broad-minded and far-sighted in our comprehension of the possibilities of the brick business?

Some of us are successful to the extent of making our particular investments pay handsomely. Some of us are successful in just barely keeping the sheriff from becoming the custodian of our plants. Some brick plants in this country today (and to the writer's personal knowledge there are more than a few) are dragging to physical and financial ruin the men who own and manage them. All of this in spite of the fact that building operations have increased annually for years; in spite of the fact that the total consumption of building materials has been greater each year than it was the year preceding; and yet those in charge of the brick industry have utterly failed to inform the public as to the merits of brick, the best material of all, with the result that the business has failed to keep pace with that of its competitors.

Is it not high time to ask, What shall be done?

I wish every brick man would array all of the facts before his own eyes and then ask himself, "What am I going to do about it?"

To my mind there is but one thing that will do any good to the industry, and that is advertise brick.

In my own business much money is spent each season to advertise my own particular line of brick, and it pays me or I would discontinue the expenditure. Yet the effect upon the industry as a whole is not sufficient to be noticed.

But when I become willing to go beyond my own city limits; when I conclude that I have a duty to the brick business of the nation; when, in addition to my own expenditures for local brick advertising, I put up my money alongside of yours for general advertising; when I join with my brother brick men in New York and California and Minnesota and Texas—and in all the intervening territory; when I devote my best thought and time conferring with you as to the accomplishment of this much-needed thing called publicity, then shall I have given an intelligent and a worthy answer to the question, What shall I do about it? What is my duty, my opportunity?

The greatest need of the industry today is to teach the public to know, to admire, to demand brick. I wish to repeat that statement: The greatest need of the industry today is to teach the public to know, to admire, to demand brick. Can any man be so insensible to the actual condition of the business as to doubt it?

It is not freight rates; it is not freedom from labor troubles; it is not the need of competent burners and superintendents; not one nor all of the troublesome petty things that constitute our annoyances can be compared with the startling fact that the public is not at present interested in brick.

In order to proceed further into the discussion let us assume that every brick man now realizes and admits the necessity for publicity. How shall we proceed to put into operation the best plan for publicity, and how shall we pay for it?

First of all, we should agree upon one method or channel, and I commend to you most heartily your own publicity department, the Building Brick Association of America, an organization just as much a part of the National Brick Makers' Association and just as inseparable from it as is the relation of the hand to the mind of the human body.

Those in charge of that association have during the past year given most careful attention and tireless effort toward carrying out its purpose. With but scant funds a creditable amount of brick advertising has resulted, and many prospective home builders have had their minds turned toward the use of brick for the first time, and the results have been splendid.

But the surface has scarcely been scratched. There is beneath it for you and for me a mine of wealth if we will make the building public want brick.

Publicity costs money and the money must come from the brick men of the country. Paying for this publicity is your duty, your privilege, your investment. Don't let those who are devoting their time and thought and money —don't let them worry about funds with which to do this important work for you.

If you are now bearing your share of the burden, won't you persuade your neighbor to bear his? Won't you join heartily in such plans as the Building Brick Association is working out, having confidence that they are the

Columbus Savings and Trust Building, Faced with Brick from the Iron Clay Brick Co., Columbus, O.

result of thoughtful consideration, much experience and that your publicity money will be profitably invested?

Do I need again to refer to what the cement industry has done by means of publicity? Shall we conquer the field of public opinion or shall we allow our active young competitor to continue in peaceful possession?

Is it our pleasure to sit idly by while the press of the nation proclaims the alleged superiority of cement over brick?

Did I say the press "proclaims" it? Yes, editorially as well as in its paid advertising columns. How familiar is the sight of a column or a page devoted to the use of cement, and this occurs in the daily newspapers as well as in the national magazines. How much greater so-called "news value" does the publisher accord to such a story when there comes along with it a check to cover last month's advertising bill.

Put up the money and your publicity department will build up a popular interest in and demand for brick.

There is, in my judgment, absolutely no other way to forge this most important missing link. Whether brick shall come into its own depends entirely upon our attitude toward this proposition.

I come not before you pleading for publicity on behalf of any magazine; I do not bear in one hand plausible sounding arguments for advertising in some particular manner and in the other hand a publisher's advertising contract; my interest in this subject is not inspired by any advertiser's rate; I stand before you as a fellow member of this association, claiming no special right to be heard on this subject; but from the depths of my heart and with every atom of brain power I possess I believe and assert that this great missing link is absolutely essential to the security and success of the brick business of the nation.

It is because I believe this that, to the extent of my ability and time, I have been and expect to be exhorting and persuading the brick men of this association and of the whole country to put their broad shoulders and their money under a great publicity campaign and thus forge into our chain of successful accomplishments and prosperity that great missing link, "publicity."

## NEW EQUIPMENT COMPANY.

The opportunities offered in the clay working industry for new devices and modern equipment of many kinds, is inducing a larger number of manufacturers to enter the field, realizing that there is a vast opportunity for expansion and development. This idea has suggested itself to the Weller Manufacturing Co., Chicago, who make a large line of elevating and conveying machinery for clay manufacturing, and a special type of oil burner for burning clays. Their exhibits at the various clay conventions elicited favorable comment and they are making a special effort to appeal to the manufacturers of clay products. Get their catalog for the asking, and see just what their line covers. It will interest you. The plant and office of the Weller Manufacturing Co. is at 817 North avenue, Chicago.

## CONCRETE FAILURE.

Even the dead may not escape the ruinous results of the treacherous concrete. A section of the cement roof being constructed by the Iowa Mausoleum Co., at Oskaloosa, Ia., fell with a crash to the floor twenty feet below. The workmen in the building fortunately were not under that portion of the roof, so escaped injury. The cement was supposed to be "set" and the support removed—the effect of the sun's rays soon caused it to fall.

## A BUSY PLANT AT WELLSVILLE.

The plant of The Stevenson Co., of Wellsville, O., is exceedingly busy these days in completing numerous orders for dry pans, sewer pipe presses, and other clay working machinery and Mr. Chas. Stevenson expresses himself as well pleased with the outlook in the clay working industry for this year.

The Stevenson plant is very complete in its equipment and particularly well arranged for the manufacture of clay working machinery. It is housed in steel and brick fireproof structures and one of its particular advantages is in its complete electrical equipment. Mr. Stevenson, instead of depending upon city service, has his own complete electric generating plant which operates all the machinery at the works and also supplies the light.

The latest innovation to be brought out by the Stevenson Co. is a roller bearing wet pan, of which several have already been manufactured and which promises to be a very valuable improvement in this feature of clay working machinery. The particular advantages of the roller bearing wet pan are found in the great reduction of power required to operate same as well as reduction in wear and repairs.

One of the features noticeable at the Stevenson plant is the handsome and neatly arranged office building which is distinctively representative of clay products manufacture throughout, being constructed of brick and tile and having its floors paved with mosaic encaustic tile in attractive designs.

The Stevenson Co. are making themselves especially strong in the drain tile field, their presses being used to a considerable extent for the manufacture of the larger sizes of drain tile.

## IMPORTANT PURCHASE.

The J. Walter Miller Co., of Trenton, N. J., has purchased the plant and business of the Bordentown Brick Co., at Bordentown, N. J., consisting of 35 acres, machinery and buildings of modern design. The factory has a capacity of 10,000,000 per year.

The J. Walter Miller Co. is composed of Senator L. A. Thompson, of Somerville, N. J., the president, and J. Walter Miller, of that city, secretary and treasurer. In 1908 it took over the plant at White Horse, of the Independent Brick Co., and last April bought the plant and business, at Bordentown, of S. Graham & Co., brick manufacturers. These plants give the J. Walter Miller Co. a combined capacity of 50,000,000 brick per annum.

The product of the plants will be sold by the Independent Brick Selling Co., with offices in Trenton and in Philadelphia. These factories being adjacent it is the purpose of the manufacturers, by an interchange of clays, to better the quality of all the factories.

Mr. Miller declares prospects for 1911 better than they have been for the past four or five years. The company is shipping 100,000 brick daily.

## CANADIAN COMPANY.

Stockholders of the Alberta Clay Products Co., Medicine Hat, Can., held their annual meeting recently.

Matters of interest to the company were discussed and a new board of directors chosen, as follows: H. C. Yuill, T. F. Hook, E. M. Lundeen, W. Overpack, John Dixon, A. F. Doughenbaugh and James Campbell.

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The Ridgeville (Ind.) Tile & Brick Co. has increased its capital stock from $10,000 to $20,000. R. A. Almonrode is president of the company.

EXAMPLE OF MODERN BRICK ARCHITECTURE.
House at Chestnut Hill, Philadelphia, Pa.

## NEW OREGON BRICK PLANT.

A fine clay deposit was found at the new town of North Plains, Washington Co., Ore., by J. H. Duke, who formed a company for the manufacture of common brick and drain tile. The title of the firm is The North Plains Tile, Shale & Brick Co. Mr. J. H. Duke is president and manager. He is a practical man with many years of experience in brick and tile manufacturing. The new plant is in the heart of a rich valley that will use large quantities of drain tile. The new town of North Plains has booked some orders with the company, and as the town is growing rapidly it offers a very promising future to this new company.

The United Railways is now building a switch into the clay property and preparations are being made for the quick hauling of large quantities of brick and tile.

## NEW EQUIPMENT PURCHASE.

The Buffalo Brick Co., of Buffalo, Kans., are arranging to install a new equipment purchased from the Bonnot Co., consisting of the Canton Special brick machine, heavy duty pug mill and large reciprocating automatic cutter.

This outfit will be installed in time for the opening of spring trade.

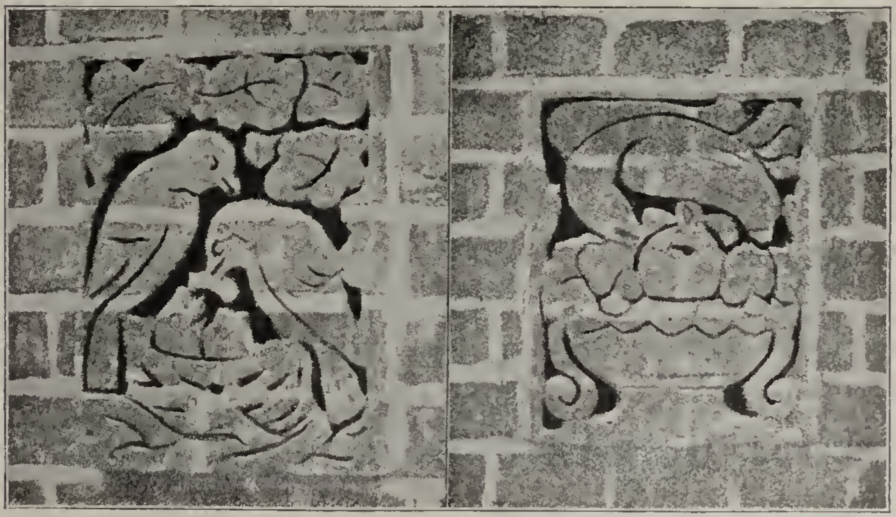
## MACHINERY INSTALLATION.

The Entress Brick Co., Pittsburg, have just installed an outfit of machinery from the Bonnot Co., consisting of 75,000 capacity brick machine, rotary automatic cutter and heavy duty pug mill.

## CARVED BRICKWORK.

In the new officers buildings in Berlin some interesting examples of carved brickwork from designs by Walter Schmarie, one of the professors of the Royal Art School, may be seen. These designs were worked out by pupils in the Art School after the brick had been built into the wall.

One of these novel pieces of sculpture which we illustrate represents two birds feeding their young ones, the other shows a bird stealing fruit.



As will be seen from the illustrations, the brick are cut completely through as though a fret saw had been used.

Carved brickwork was introduced into England from Holland in the 17th century but, so far as we are aware, no work in the style shown on this page has ever been attempted.

# Roster of Building Brick Association of America

| | |
|---|---|
| Adams Brick Co. | Indianapolis, Ind. |
| Acme Press Brick Co. | Ft. Worth, Tex. |
| Alliance Brick Co. | Alliance, O. |
| Alliance Clay Products Co. | Alliance, O. |
| Alton Brick Co. | Alton, Ill. |
| Alumina Shale Brick Co. | Bradford, Pa. |
| Alwine Brothers | New Oxford, Pa. |
| American Brick Co. | Berlin, Conn. |
| American Clay Machinery Co. | Chicago, Ill. |
| American Clay Machinery Co. | New York City |
| Athens Fire Brick Co. | Athens, Tex. |
| Barkwill Brick Co. | Cleveland, O. |
| Barr Clay Co., The | Streator, Ill. |
| Beaver Clay Mfg. Co. | New Galilee, Pa. |
| Benedict, John | Davenport, Ia. |
| Benton Harbor B. & T. Co. | Benton Harbor, Mich. |
| Bessemer Limestone Co. | Youngstown, O. |
| Bewnurgh Brick & Clay Co. | Cleveland, O. |
| Biglow, E., Co. | New London, O. |
| Biesanz, Frank D. | Winona, Minn. |
| Blair, Will P. | Indianapolis, Ind. |
| Black Co., John H. | Buffalo, N. Y. |
| Bolivar Fire Brick Co. | Bolivar, Pa. |
| Boone Brick Tile & Paving Co. | Boone, Ia. |
| Bonner & Marshall Co. | Chicago, Ill. |
| Bonnot Co., The | Canton, O. |
| Bradford Pressed Brick Co. | Bradford, Pa. |
| Brazil Clay Co. | Brazil, Ind. |
| Brick & Clay Record | Chicago, Ill. |
| Buck Brick Mfg. Co., H. E. | Lake Charles, La. |
| Burke Brick Co. | Rochester, N. Y. |
| Canton Pressed Brick Co. | Canton, O. |
| Carter, Black & Ayers | New York City |
| Carter & Foster | London, O. |
| Chambers Brothers Co. | Philadelphia, Pa. |
| Cherry Co., P. L., Inc. | Portland, Ore. |
| Claycraft Brick Co., The | Columbus, O. |
| Cleveland Builders Supply Co. | Cleveland, O. |
| Clinton Paving Brick Co. | Clinton, Ind. |
| Collingwood Brick Co. | Toledo, O. |
| Columbus Brick & Terra Cotta Co. | Columbus, O. |
| Cook, E. L. | State Farm, Mass. |
| Corey Brick & Tile Co. | Corey, Pa. |
| Crawfordsville Shale Brick Co. | Crawfordsville, Ind. |
| Danville Brick Co. | Danville, Ind. |
| Darlington Brick & M. Co. | Pittsburg, Pa. |
| Davenport Brick & Tile Co. | Davenport, Ia. |
| Deckman-Duty Brick Co. | Cleveland, O. |
| Denny-Renton Clay & Coal Co. | Seattle, Wash. |
| Densmore, Samuel B. | Portland, Me. |
| Denver Pressed Brick Co, The | Denver, Colo. |
| D'Hanis Brick & Tile Co. | D'Hanis, Tex. |
| Dickinson Brick & Tile Co. | Glasgow, Ky. |
| Dickover & Son, Geo. T. | Wilkes-Barre, Pa. |
| Dillehay Brick Co. | Danville, Ky. |
| Dolben & Sullivan | Boston, Mass. |
| Dobbs, S. B. | Philadelphia, Pa. |
| DuBois & Butler Brick Co. | DuBois, Pa. |
| Donley Brick Co. | Washington, Pa. |
| Durango Pressed Brick Co. | Durango, Colo. |
| Duty Company | Cleveland, O. |
| Eastern Machinery Co. | New Haven, Conn. |
| East. Townships B. & M. Co. | Lennoxville, Que., Can. |
| Ellicott Brick Co. | Buffalo, N. Y. |
| Everhard Co., The | Massillon, O. |
| Farr Brick Co., The | Cleveland, O. |
| Fiske & Co., Inc. | New York and Boston |
| Fond du Lac Pressed Brick Co., The | Fond du Lac, Wis. |
| Fredenburg & Lounsbury | New York City |
| Freese, E. M., & Co. | Galion, O. |
| Gaddis, LeRoy W. | Columbus, O. |
| Gem City Press Brick Co. | Quincy, Ill. |
| Georgia-Carolina Brick Co. | Augusta, Ga. |
| Gloninger & Co. | Pittsburg, Pa. |
| Goldrick, Philip | Saugerties, N. Y. |
| Guignard Brick Works | Columbia, S. C. |
| Gulf States Brick Co. | Beaumont, Tex. |
| Haeger Estate, The, D. H. | Elgin, Ill. |
| Hamblet, Melvin | Woodfords, Me. |
| Hanover Red Pressed Brick Co. | Hanover, O. |
| Harbison-Walker Reftrs. Co. | Pittsburg, Pa. |
| Harbison-Walker Reftrs. Co. | New York City |
| Harrison, W. H. | Cleveland, O. |
| Hendricks Brick Co., The | Kingston, N. Y. |
| Hilderbrand, Andrew P. | Louisville, Ky. |
| Hinde Brick & Tile Co. | Sandusky, O. |
| Holmes & Co., F. B. | Detroit, Mich. |
| Hood, B. Mifflin | Atlanta, Ga. |
| Horseheads Brick Co. | Horseheads, N. Y. |
| Hydraulic Press Brick Co. | St. Louis, Mo. |
| Idaho Lime Co. | Spokane, Wash. |
| Illinois Brick Co. | Chicago, Ill. |
| Independent Brick Selling Co. | Trenton, N. J. |
| Indiana Brick Co. | Anderson, Ind. |
| Ironclay Brick Co. | Columbus, O. |
| Ittner, Horace H. | Prince Albert, Sask., Can. |
| Jamestown Paint & Varnish Co. | Jamestown, Pa. |
| Jenkins Brick Co. | Montgomery, Ala. |
| Jenkins & Reynolds Co. | Chicago, Ill. |
| Jewettville Brick Co. | Buffalo, N. Y. |
| Johnson & Johnson Co. | Raleigh, N. C. |
| Jova Brick Works | Roseton, N. Y. |
| Keller Brick Co. | Cuyahoga Falls, O. |
| Kimbel Brick Co. | Chicago, Ill. |
| Kittanning Brick & Fire Clay Co. | Pittsburg, Pa. |
| Kittanning Clay Products Co. | Bradford, Pa. |
| Koehler Company, A. | Geneva, Neb. |
| Kushequa Brick Co. | Kushequa, Pa. |
| La Junta Brick & Tile Co. | La Junta, Colo. |
| Leach, J. M. | Kokomo, Ind. |
| Los Angeles Brick Co. | Los Angeles, Cal. |
| Los Angeles Press Brick Co. | Los Angeles, Cal. |
| Main Belting Co. | Philadelphia, Pa. |
| Malakoff Press Brick Co. | Ft. Worth, Tex. |
| Manufacturing & Supply Co. | Boyne City, Mich. |
| Marion Brick Works | Indianapolis, Ind. |
| Martinsville Brick Co. | Martinsville, Ind. |
| McArthur Brick Co. | McArthur, O. |
| McCausland Brothers | Akron, O. |
| McCollem, Sol. A. | Louisville, Ky. |
| McHose, Charles | Maxwell, Ia. |
| Meacham & Wright Co. | Chicago, Ill. |
| Meir, N. L. | LaCrosse, Wis. |
| Metropolitan Paving Brick Co. | Canton, O. |
| Meyer & Co., A. B. | Indianapolis, Ind. |
| Moulding Co., Thos. | Chicago, Ill. |
| National Dry Kiln Co. | Indianapolis, Ind. |
| Northern Brick & Supply Co. | St. Paul, Minn. |
| Oakland Pressed Brick Co. | Zanesville, O. |
| Ochs, A. C. | Springfield, Minn. |
| O'Connell's Sons, Daniel | Holyoke, Mass. |
| Ohio Mining & Mfg. Co. | Shawnee, O. |
| Orton, Edward | Columbus, O. |
| Paine & Nixon Co. | Duluth, Minn. |
| Pearl Clay Products Co. | Bradford, Pa. |
| Pettit & Co. | New Brunswick, N. J. |
| Pfotenhauer-Nesbit Co. | New York City |
| Poston Paving Block Co. | Crawfordsville, Ind. |
| Potomac Brick Co. | Washington, D. C. |
| Potts Co., C. & A. | Indianapolis, Ind. |
| Post, W. & J. | Glen Head, N. Y. |
| Puritan Brick Co. | Detroit, Mich. |
| Queen City Brick Co., The | Buffalo, N. Y. |
| Queisser-Bliss Co. | Cleveland, O. |
| Ramsey, Andrew | Mount Savage, Md. |
| Randolph, J. R. | Ruston, La. |
| Red River Valley Brick Corp. | Grand Forks, N. D. |
| Reed, B. H. & Bros. | Hightstown, N. J. |
| Reid, A. S., & Co. | Newark, N. J. |
| Reynoldsville, B. & T. Co. | Reynoldsville, Pa. |
| Ridgway Brick Co. | Ridgway, Pa. |
| Ringle Brick Co. | Wausau, Wis. |
| Riverside Fuel & Supply Co. | Fremont, O. |
| Rodgers, L. E., Engineering Co. | Chicago, Ill. |
| Rochester Composite Brick Co. | Rochester, N. Y. |
| Rochester Brick & T. Mfg. Co. | Rochester, N. Y. |
| Rogers & Manson | Boston, Mass. |
| Rose, Alonzo & Co. | Kingston, N. Y. |
| Rose Brick Co. | New York City |
| Sanborn Brick & Ice Co. | Portage, Wis. |
| Salmen Brick & Lbr. Co. | New Orleans, La. |
| Salmen Brick & Lbr. Co. | Slidell, La. |
| Sayre & Fisher Co. | Sayreville, N. J. |
| Schmidt, Wiphart | Kenton, O. |
| Sheffield Brick & Tile Co. | Sheffield, Ia. |
| Sheldon Brick Co. | Champaign, Ill. |
| Shull & Badger Brick Co. | Butler, Pa. |
| Sibley, Est. of Hiram | Rochester, N. Y. |
| Sibley-Menge Press Brick Co. | Birmingham, Ala. |
| Sidney Brk. & T. Co. | Sidney, Man., Can. |
| Sioux City Brick Co. | Sioux City, Ia. |
| Smith, J. Fred., Brick Co. | Omaha, Neb. |
| Standard Brick Co. | Cleveland, O. |
| Standard Brick Co. | Macon, Ga. |
| Standard Brick Mfg. Co. | Evansville, Ind. |
| Standard Dry Kiln Co. | Indianapolis, Ind. |
| Staples, A. S. | Kingston, N. Y. |
| Starkey, John | Canton, O. |
| Statesville Brick Co. | Statesville, N. C. |
| Stephenson, L. L. | Birmingham, Ala. |
| Stiles & Hart Mfg. Co. | North Haven, Conn. |
| St. Joseph Pressed Brick Co. | St. Joseph, Mo. |
| Stuempfle's, David, Sons | Williamsport, Pa. |
| Suburban Brick Co. | Wheeling, W. Va. |
| Sunderland Bros. Co. | Omaha, Neb. |
| Sunset Brick & Tile Co. | Gonzales, Tex. |
| Terre Haute Vitrified Brick Co. | Terre Haute, Ind. |
| Terry Bros. Co. | Kingston, N. Y. |
| Tiernan, P. H. | Macomb, Ill. |
| Toronto Fire Clay Co. | Toronto, O. |
| Trumbull Brick Co. | Youngstown, O. |
| Tuna Valley Pressed Brick Co. | Bradford, Pa. |
| Tuttle Brick Co. | Middletown, Conn. |
| Twin City Brick Co. | St. Paul, Minn. |
| Vaneklasen, G., sec. Zeeland B. Co. | Zeeland, Mich. |
| Wabash Clay Co. | Veedersburg, Ind. |
| Walter, Geo. J. | Chatsworth, Ill. |
| Washburn, A. F. & J. T. | Saugerties, N. Y. |
| Western Brick Co. | Danville, Ill. |
| Western Clay Mfg. Co. | Helena, Mont. |
| Western Brick & Supply Co. | Hastings, Neb. |
| Wever, Donnelly | Cincinnati, O. |
| White, Frank A. | Easton, Md. |
| Williamsgrove Brick Co. | Williamsgrove, Pa. |
| Wooster Shale Brick Works | Wooster, O. |

# MAKING THE TOY MARBLE

It has been estimated by statisticians, that over 200,000,000 small clay marbles are used annually by the boys of the United States every springtime, and it is a fact that 125,000,000 of these little clay "pills" are made every year by one clay marble manufacturer, whose plant is located in Summit County, Ohio, and these marbles are made or rolled by young girls.

The clay marble industry of the United States is one that has attracted little attention, although the small boy on every corner, with his "commies and aggies" is as sure a harbinger of Spring as the merry redbreast.

But the marble manufacturer does not devote all his attention to the manufacturing of the "game marble". There are various other uses to which the marble is put, and as a matter of fact the size varies according to its intended use. The Standard Oil Co., is one of the largest buyers of marbles, and these are used in oil cans, and larger sizes are used in graded pipe lines, to clean out the parafine which gathers to the side of the pipe as the oil flows to the tanks.

Clay marbles are also used by the manufacturers of rubber, ink, salt, chemicals and powder. They are also used in grinding the large stones in the lithographers' plant and by railway supply people. Puzzle-box makers are also large buyers of marbles.

The size of the clay marbles, as made in the United States, vary from nine-sixteenths of an inch in diameter, which is the small "pill" the boys play with, to one measuring six inches in diameter or about the size of a small cannon ball.

The making of a clay marble forms an interesting study in ceramics. The method of making all kinds of marbles is the same, with the exception of the "glassie", which, of course, is made of glass.

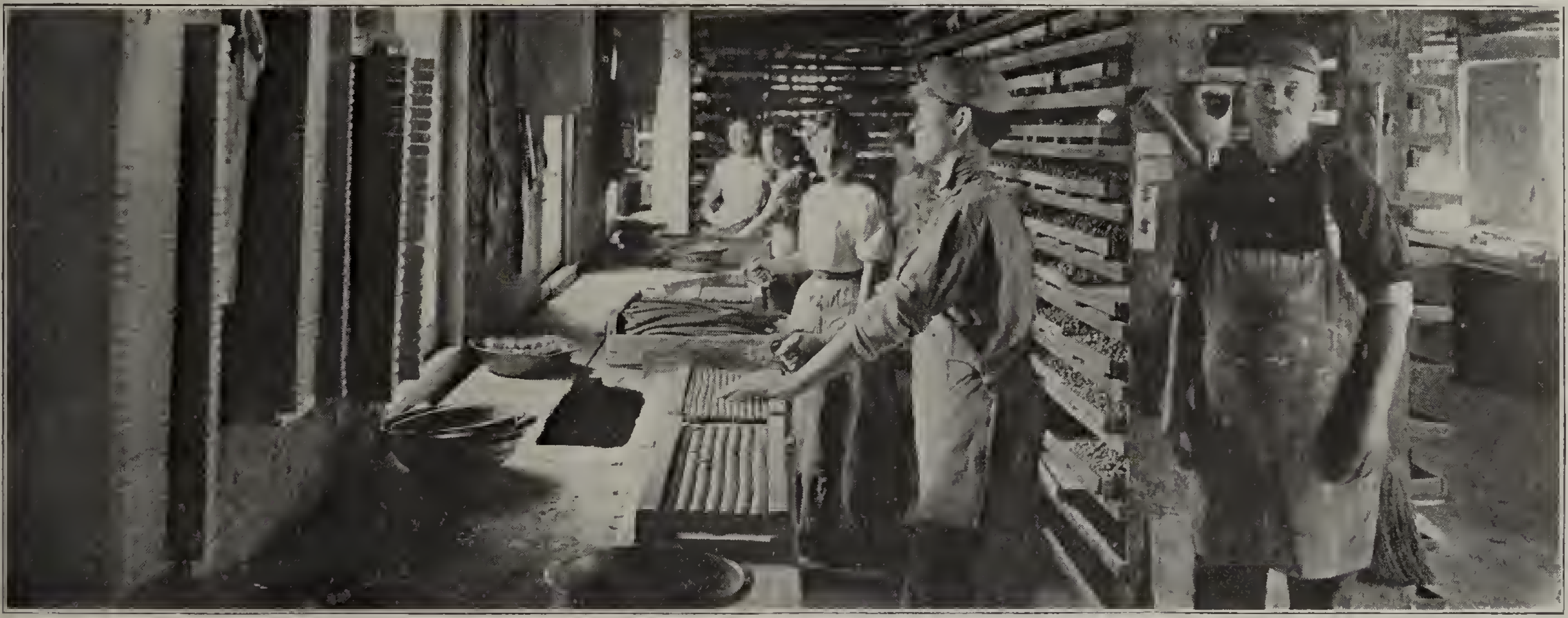
Clay used in the marble industry is of a plastic nature These clays are cast into a pugmill or "chaser" and as the heavy wheels revolve over the clay it drops in a pulverized form into a bin beneath the mill, and is lifted by an endless elevator system to storage bins, when it passes through the pug mill.

The stiff clay is then forced through the perforated base of the pug mill and comes from the mill in the form of clay strings, the diameter of these being regulated by the round holes in the base of the mill, and conforming to the size of the marble to be made.

These rolls or strings of clay are pulled from the pug mill,—when they are about eighteen inches in length they are placed on a flat board, and taken to the clay shops where the marbles are made.

The rolls of clay are first placed evenly in a "trough", as shown in the picture, and a workman cuts the rolls of clay into cubes, the size being specified according to the order. The cutting is done with a saw and seven rolls of clay will form over 200 little cubes, and it is from these cubes that the marbles are rolled. Girls are largely employed in the cutting of the cubes and they become very rapid in their work and are thus able to make good wages.

After the cubes have been cut, they are placed in an ordinary tin pan and these are carried to the girls who make the marbles. A handful of cubes is picked up and these are placed one at a time in a grooved plaster of paris mold. The size of the groove also depends upon the size of the marble to be made. When there is one clay cube in each groove a plaster oblong block is placed in position on top of the cubes, and this is pushed forward and backward until the little clay cube becomes perfectly round and true. This operation requires very little time, then the top block is lifted and the clay marble, in its green state, is picked up and a "handfull" placed in a tray. This operation resembles one picking up a bunch of grapes.



Sawing Clay Strips from which the Marbles are Rolled.

One girl who has acquired speed in her work can make from 25,000 to 30,000 marbles per day. As there are 50 rolls to a block the operator is paid six cents per thousand for the making of the common clay marble. The finer the grade the order calls for, the higher the price paid for making.

There is not a great profit in the making of the common clay marble, when the fact is taken into consideration that they are shipped to the markets at a price varying from 16 to 20 cts. per sack of one thousand marbles each.

As the common clay marble is shipped to the dealer in muslin sacks, one manufacturer alone uses over 40,000 yards of white and colored muslin. These sacks are made at the rate of 20 cents per hundred, and it is not uncommon for the makers to receive from $2 to $2.50 per day for their labor on sacks. These are not made at the marble factories but at homes near by.

The burning of the clay marble is quite the same as the burning of other clay product. As a rule an eight-inch sagger is used, and one sagger will hold about 3,000 small marbles. The capacity of the kiln being about 3,000,000 marbles.

After the burning, the marbles are colored, by dumping them into a revolving pan, into which colored schellac and wood alcohol is poured. As the thousands of marbles are whirled 'round and 'round, the liquid coloring comes into contact with every marble, and at a given time the colored marbles are taken out and dumped into a mammoth box.

Girls Rolling Marbles and Drying Boards.

Marbles are counted by weight, also by the cubic foot. The small clay marbles measuring nine-sixteenths of an inch in diameter weigh six and one-half pounds to the thousand, and are colored at the rate of 200,000 every eight minutes. Shipments are generally made in barrels, and there are from 50 to 60 sacks in a barrel, and 1,000 marbles in a sack. The production of the common clay marble is at the rate of from 500,000 to 750,000 a day.

Coloring, Weighing and Sacking Marbles for Shipment.

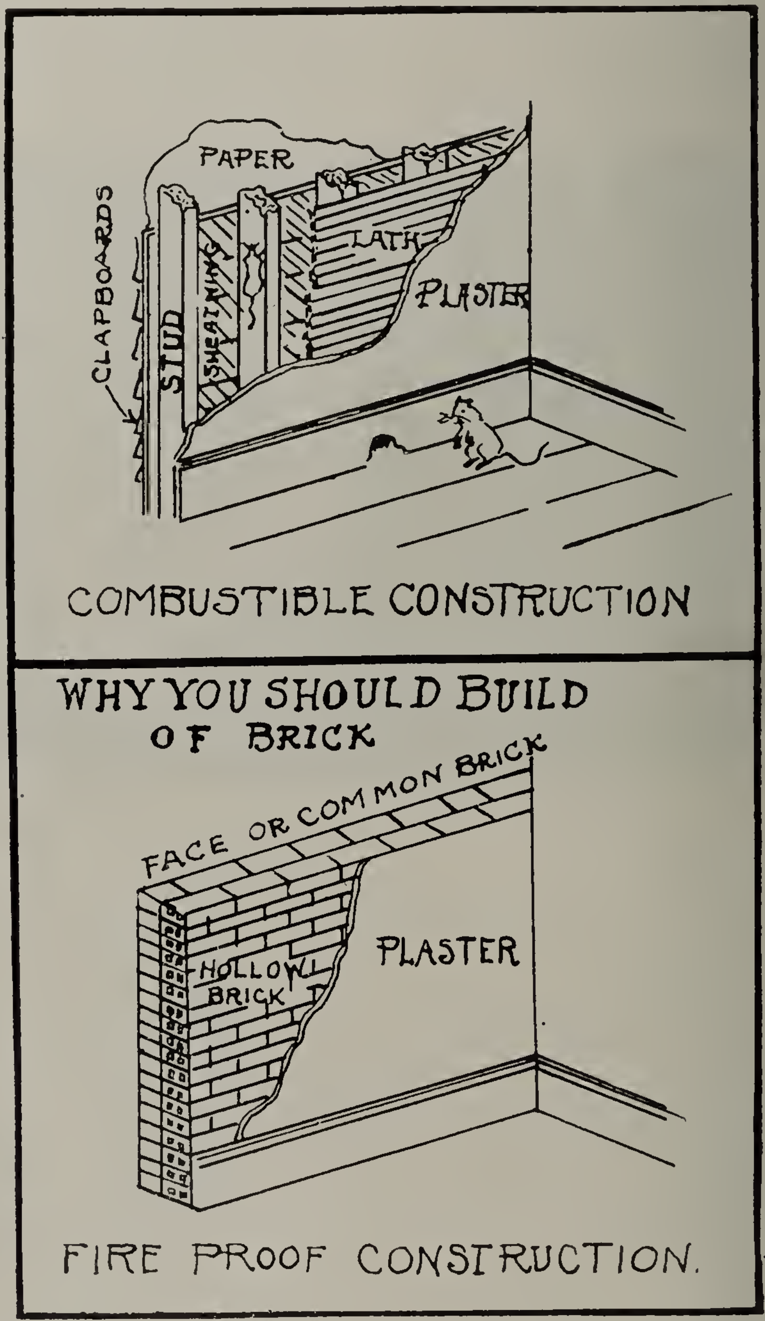
## BRICK AND TILE FACTORY.

C. S. Hoskins, one of the leading spirits in Donald, Ore., conducts the brick and tile plant there. He has about twelve acres of land underlaid with a fine quality of clay for both brick and tile. However, these deposits of clay are different, and what makes first-class brick clay is not necessarily first-class tile clay, but he has clay for both materials and is putting out good articles. The capacity of the brick plant will be about 20,000 per day, but as yet they have not arranged to run to full capacity.

## WHAT A LIVE MAN DOES IN HIS OWN TOWN.

An example of what may be accomplished in educating the public to the superior advantages of brick for building purposes, is the little booklet sent out by C. H. Merrick, a brick manufacturer at Syracuse, N. Y. A cut appears on the first page followed by 24 good reasons why brick should be used.

Among them are: Lumber is high; brick is cheap. Brick buildings require less insurance. Brick walls require no paint. Brick effects a saving of furring, lath, lath nails, carpenter work and lumber. You can build on your lot line with brick; with wood you cannot. Brick are fireproof. Brick houses cost less to maintain. They are cool in summer, and warm in winter. The bank will advance a larger loan on them. They are more salable and do not decay; eliminates the playground of rats, mice and vermin, so common in frame dwellings. Adds to sanitary condition of building. Deadens sound. Plastering is firmer on brick than lath. The hollow brick for the inside course of the walls makes a dry, warm building. Hollow brick can be used for partitions. Adapted for the cheapest dwelling or for the heaviest class of building. Brick buildings look, and are more substantial, giving an impression of value. Brick only stood the test of fire at Baltimore, Chicago and San Francisco. They have been made and used over six thousand years.



## SILO AT FAIR GROUNDS.

The Boukind-Carlson Brick Co., of Crookston, Minn., are planning to build a brick silo on their local fair grounds for the fair, next fall.

# Practical Mining System of the East Ohio Sewer Pipe Company

Noted for its system, the mines of the East Ohio Sewer Pipe Co., Irondale, Ohio, have been the Mecca for those interested in the clay industry in all parts of the country. It is estimated that over 500 people who are interested in clay and clay mining visit the mines of this company yearly.

So dry are these mines that the roads in the entries and rooms are as dusty as an unpaved country highway in the midsummer season. This is made possible because in opening the mines the company followed the suggestions of its superintendent of mines, W. E. Williams, and the main entry was driven far enough back so that all water escapes through the hillside surface instead of coming down through the roof. In other words, the entry was driven back into the very heart of the hill before a cross entry was attempted.

The successful operation of a mine, whether it is wet or dry, depends very largely upon the skill of the superintendent. It too often occurs that once a mine is opened the superintendent starts a cross entry sooner than he should, and as a result the mine is soon troubled with water or a cavein results. Nothing of this character has ever occurred in the mines of the East Ohio Company.

## DAILY CLAY REPORT

Month____________Day____________191__

| | No. 1 | No. 2 | No. 3 | No. 4 | No. 5 | No. 6 | No. 7 | No. 8 | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |

One of the Record Blanks.

The "discovery" of the clay being mined by this company was accidental. Some years ago the Cleveland & Pittsburgh Railroad Co. started to build a new bridge and in excavating for an abutment suddenly came to a rich vein of clay. The sewer-pipe people became interested in the deposit and started to make further analysis. Due east the company started a drill and at a depth of less than 100 ft. the new vein of clay was struck, this vein being 17 ft. thick.

At once more than $5,000 was spent in opening the deposit, which consists of over 600 acres. A shaft was dug, reaching to the bottom of the 17-ft. vein of clay and lined on all four sides with 4-in. oak cribbing. The clay was worked due east. Immediately over the clay vein is a 4-in. thickness of composition of coal and iron ore. On top of the coal is a roof of slate and above the slate is a heavy layer of sandstone.

The laws of Ohio relating to mining are very strict and the company through its superintendent has followed these minutely.

The shaft of this mine was opened to the depth of 67 ft. The elevator is lowered and raised by one and one-quarter in. cable. Attached to the cable near the top of the "lift" is an attachment, which if the cable should part would be released and the grips would at once become tighter and tighter against the guide or side rails, thereby making it impossible for the lift to fall any distance before the grips are set tight.

The double-entry system is worked in this mine. The Ohio laws provide that the entry shall be worked a certain distance ahead of the air. At every 140 ft. there is a cross entry or break-through. Then every 75 ft. along the cross entry a room is driven. In time all these rooms are worked out until they meet. These rooms are 300 ft. in length and when two rooms meet it indicates that 600 lineal ft. of clay have been worked, and as the rooms measure 18 by 10 ft. the number of cu. ft. of clay that have been mined in one room can easily be figured up. The main entry, however, other than near the lift averages 14 ft. sq. and has but a single track.

When two rooms have been worked until they meet the tracks are lifted and doors placed at the entry to the room. By this method there is a constant circular force of air going through the mine, there being 40,000 cu. ft. of air forced in at the mouth of the shaft by a 12-ft. fan, and the air is forced from the mine at an entry a 100 yds. or more distant from the shaft.

So strong is this force that when a miner's lamp is held in the center of the opening the flame is blown flat over the spout of the lamp. It is also said that tests have shown that when the air comes from this mine it is almost at the freezing point.

After two rooms have been worked together a pillar of between 70 and 140 ft. is left, for it must be remembered that there is not a stick of timber in the entire mine. The only timber that is used is the 4x4 pieces laid for rails, and these pieces are used for only a short distance.

After the rooms have been worked and before the doors have been placed at either end the tracks are lifted and taken to another room that is being opened. In this manner the expense of rails is reduced to the minimum.

The system of mining is a most simple one, and three crews of men are kept at work constantly. The mine is lighted by electricity. Two Jeffrey "5-A" drills are used, one being held in reserve in case of a breakdown. A driller and a boy is used on the drilling machine. The first four holes are bored at a length of 6 ft. and upward at an angle of 45 degrees. As soon as these holes are bored in one room the crew leaves and then comes the shooter. This individual has no helper. He places from one to three sticks of dynamite in the holes and then fills in with one-half pint of powder. Only one hole is shot at a time.

This completes the work of the exploder, and he is followed by a loader, who perchance has cleaned an adjoining room. The loader can have all the cars he wants, but is limited to between 4,000 and 4,500 lbs. to the car. The first shooting in the room has left a "bench" and when the clay from the first or top shot has been cleared away the drillers return in due season and drill in the "bench." In each instance the drill is worked as such an angle that the explosion will throw the clay out. In other words, the shot is placed back of the clay.

One loader has two rooms to work in. When he has cleaned one room he goes back to the other, and this method of cleaning the rooms is followed throughout the entire mine.

Two mules are used in the mine, and the loader has nothing to do with the bringing of the loaded or empty cars to or from the main entry. By following this plan the greatest amount of speed is attained in all departments. The drillers, the shooters and the loaders have nothing in common with each other. There are only six loaders employed, and when it is considered that from 160 to 170 tons are taken from the mine and weighed daily and that the loaders are paid at the rate of 9 cents per ton the volume of clay and the cost of loading is easily obtained.

NO. ____________________

CARS ____________________

DATE ____________________

WEIGHT ____________________

NO. ____________________

CARS ____________________

DATE ____________________

WEIGHT ____________________

System is also employed in checking the weights. As the cars are passed over the scale the weigh master takes a check from the car indicating which loader to credit it to. This weight is placed on the large form (shown herewith) and a small check to correspond with the weight is given the loader when he comes into the office in the afternoon. Work starts in the mines at 7 a. m. and the miners quit at 3 o'clock in the afternoon. At the end of the day the miner knows exactly how much he has earned that day and at the end of the week his own time must correspond with the office records.

There are 14 end-dump cars worked in the mine, and these are made by the company. They hold about two and one-half tons each. When the mule hauls the cars to the mouth of the shaft "it" returns with an empty, and one man always stationed at the bottom of the shaft takes the empty car from the lift and places the loaded car on it. A signal is then given the engineer and the car is taken to the top of the shaft.

The mines of this company are almost perfectly free from gas, although once in a long while the drillers find a crevice and the hissing of the gas is discerned. A lighted lamp is placed in the hole and the small amount of gas is soon burned.

Drillers bore on an average of 40 holes per day. They first use a short drill and then a longer one is placed in the socket and the boring continues. The armature on the drill makes 4,000 revolutions per minute, but the drill is geared to only 90 revolutions per minute.

The system of operation is the most simple ever worked in a clay mine, the cost of production being reduced to the smallest possible minimum, and if other sewer-pipe manufacturers would follow the same system their revenues from the finished product would be far greater than they now are.

## HONOR CONFERRED ON MR. W. E. DUNWODY.

The many friends of Mr. W. E. Dunwody, president of the Standard Brick Co., Macon, Ga., will be pleased to know he is equally popular among the business men of the South.

Mr. Dunwody is generally recognized as one of the most progressive and wide awake young business men in the South and has recently been elected chairman of the executive committee of the Central Capital Association, which organization has as its object the removal of the state capital from Atlanta to Macon.

Throughout the state of Georgia, Mr. Dunwody is recognized as one of the best organizers of that section. Having made a great success of a number of private enterprises which he started, the people of the Empire State of the South have honored him by electing him the president of the Georgia State Fair Association. This annual event which is held for ten days every fall is regarded by many Southerners and by all Georgians as the leading fair of the South, and it has never before enjoyed the success that has attended it during the years which Mr. Dunwody has been its active head.

Recently Mr. Dunwody was elected a director of the Brick Building Association of America, he being one of two southern men who were elected to the directorate of that important association.

In addition to his connection with the Georgia State Fair and his several private interests, Mr. Dunwody is first vice-president and a prominent director of the Macon Chamber of Commerce. He is closely identified with church and social life in Macon, and is regarded as one of the leading "city builders" of the Central City.

Mr. Dunwody has not yet outlined his campaign for the work of the Central Capital Association, but it is safe to say that he will instill into this work the vigor and enthusiasm which has been so apparent in other enterprises which he has been connected with.

## NORTHWESTERN CLAY ASSOCIATION.

The third annual convention of the Northwestern Clay Association is being held at the Hotel Radisson, Minneapolis. John R. Bell, instructor in Building Arts at the Pennsylvania State Reformatory, Huntington, Pa., will deliver an address on "Industrial Education." Samuel Weidman, professor in ceramics at the Wisconsin State University, Madison, Wis., will deliver an address on "The Advantages of Brick Construction"; Mr. Geo. C. F. Vater of Dayton, Ohio, will deliver a paper on "Producer Gas Burning"; Mr. R. J. Olin of Merriam Park will speak on "The Economic Handling of Clay Products." A number of other prominent speakers will appear on the program. A full account of the meeting will appear in our next issue.

## PURCHASE NEW MACHINERY.

Ft. Scott Brick & Tile Co., of Ft. Scott, Kans., recently added three Canton represses and large pug mill purchased from the Bonnot Co. through their Kansas City representative.

# THE TUCSON PRESSED BRICK COMPANY

To utilize the extensive and valuable deposit of volcanic shale, which has been unearthed near Tucson, Arizona, a company known as the Tucson Pressed Brick Co. has been organized with ample capital for the purpose of making pressed brick.

Plant of the Tucson, Ariz., Pressed Brick Co.

Before erecting the plant, the company had extensive experiments made in Chicago and St. Louis to determine the color and quality of pressed brick that could be made from the shale. These experiments were most satisfactory and demonstrated that both pressed and vitrified brick equal to the best in a variety of colors, such as white, pink, cream, old gold, brown and red could be made.

Buildings have been erected and machinery installed with a capacity of over 2,000 brick per hour. Kilns have been erected and four more will be added. Electrical power is used to operate the plant and coal is used for burning goods. The company intends to furnish Tucson and other western cities with brick at such a low cost as to bring it within the reach of all buiilders.

Taking Brick from Machine, Tucson Pressed Brick Co.

In addition to pressed and fire brick the company will manufacture tile shingles and Spanish tiles of various colors, with which to supplant wooden and tin shingles.

The company has purchased the brick plant formerly owned by Mr. I. Monier and will manufacture common brick at that plant. As these are made in a pressed brick plant they are of a much higher grade than ordinary common brick. The company is also preparing to manufacture sewer-pipe and other products of vitrified clay. It is expected that the placing of these fireproof materials on the market at a low cost will revolutionize building in that region of Arizona.

The plant is situated on the Southern Pacific Railway and the plant and buildings were designed by the Chicago Brick Machine Co. The machine building is 40x40 ft., with power house adjoining. The materials are volcanic shale, and two grades of fire clay. The shale is mined by blasting and hauled to the plant with wagons. The fire clay is very hard and is run through a Blake crusher before it goes to the 9 ft. heavy duty Raymond dry pan. A Chicago vibrating piano wire screen is used and the four mold White machine has a capacity of 20,000 per day.

The company was incorporated in January 1909 and began operation in March of the same year. Mr. Quintus Mormier is president and general manager of the company.

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### FALLSTON PLANT DESTROYED.

The large plant of the Fallston (Pa.) Fire Clay Co. was entirely destroyed by fire Tuesday night, March 7th. The loss is estimated at fully $50,000, with only a small amount of insurance carried. Mr. James Stewart, the manager, is, however, not to be "downed" and immediately went to work with his usual energy and enterprise with plans for reconstruction. The building plans for the new equipment have been made and the order placed with the Stevenson Co., of Wellsville, O.

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### IMPROVEMENTS AT ALTON PLANT.

The Alton Brick Co., of Alton, Ill., are putting in a complete new outfit purchased from the Bonnot Co.

The installation will include Canton Special brick machine and large reciprocating automatic cutter, 12 ft. pug mill, four Canton represses and three 9 ft. dry pans. The machinery is just arriving and will be ready for operation in a short time.

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The United States Encaustic Tile Works of Indianapolis, Ind., has filed notice of dissolution.

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

BRICK AND CLAY RECORD

Vol. XXXVIII. MARCH 15, 1911 No. 6

## EDITORIAL COMMENT.

There is more and more a decided trend, in the clay industry, and in all lines of business, toward centralizing all effort in the production and perfection of one product.

This has led manufacturers to become keenly interested in scientific factory management. They are beginning to realize that the percentage of results, from their working capital and labor has been very low.

Scientific systemization is the only method by which capital can be made to render more profitable returns and the grade and efficiency of both labor and product raised to a higher plane.

These are facts which have been demonstrated and are being given earnest thought and consideration by manufacturers of clay products, especially, where the competition is keen and the man who can make his goods a shade better than his competitor is the one who "gets the orders."

Being wise in his generation, the up-to-the-minute manufacturer knows that advertising alone, will not make his business successful. He knows that if his factory is not well equipped with labor-saving machinery and then managed systematically, his product will be outclassed by the plant where efficiency has been reduced to a science.

The man who shuts his eyes to these conditions might just as well shut down his factory and telephone for a receiver.

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It was the December Everybody's that said: "As a rule, you will see that it is the Again and Again and Again Advertisements that have stuck in your mind. The man who passes your house every day—you don't remember the first time you observed him; but he goes by so regularly that before you know it you know him by sight. Most of the advertisements that you can lay your finger on got into your mind the same way. The first time you actually noticed them, you can't tell. They grew upon you speck by speck. Now you watch for them.

"Maxine Elliott, the distinguished actress, was asked, after her divorce, why she had ever married at all. She answered simply enough: 'When you see a man every day for a year or so, and when he asks you to marry him every day, why you just marry him, that's all. Repetittion every day is too much for anybody to withstand.' "

The strong fact has been brought home more clearly than ever—it is persistent presentation of facts that gets the result. It is systematic advertising every month and twice a month that attracts the buyer."

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## THE ORIGIN OF MAN.

Written for Brick and Clay Record by Chas. Byrd, burner for the Montgomery (Ind.) Tile & Brick Works.

It was a starry night in June,
The air was soft and still;
And in the best of spirits,
I started to fire the kiln;
And as I shoveled in the coal
And took the clinkers out,
My mind got started in the way
Of "how man had come about."

God made the world and then made man;
Of course that is not a shock;
But if you look the records up,
Man was not made of rock.
They were not up to carving rock,
So long before the flood,
But if they were, rock would not work
Up into bones and blood.

I know man was not made of wood,
For to me it still appears
That a man made of any kind
Would rot in twenty years.
I know they never then used what
We now term as shale,
For if they did his face would look
So scaly, rough and pale.

But I am sure that God made man,
And made him out of clay;
He took his time to every part,
And did not think of pay.
And so experience teaches us
That rock and wood are out of style,
And CLAY alone is the only thing,
That will make a BRICK or TILE.

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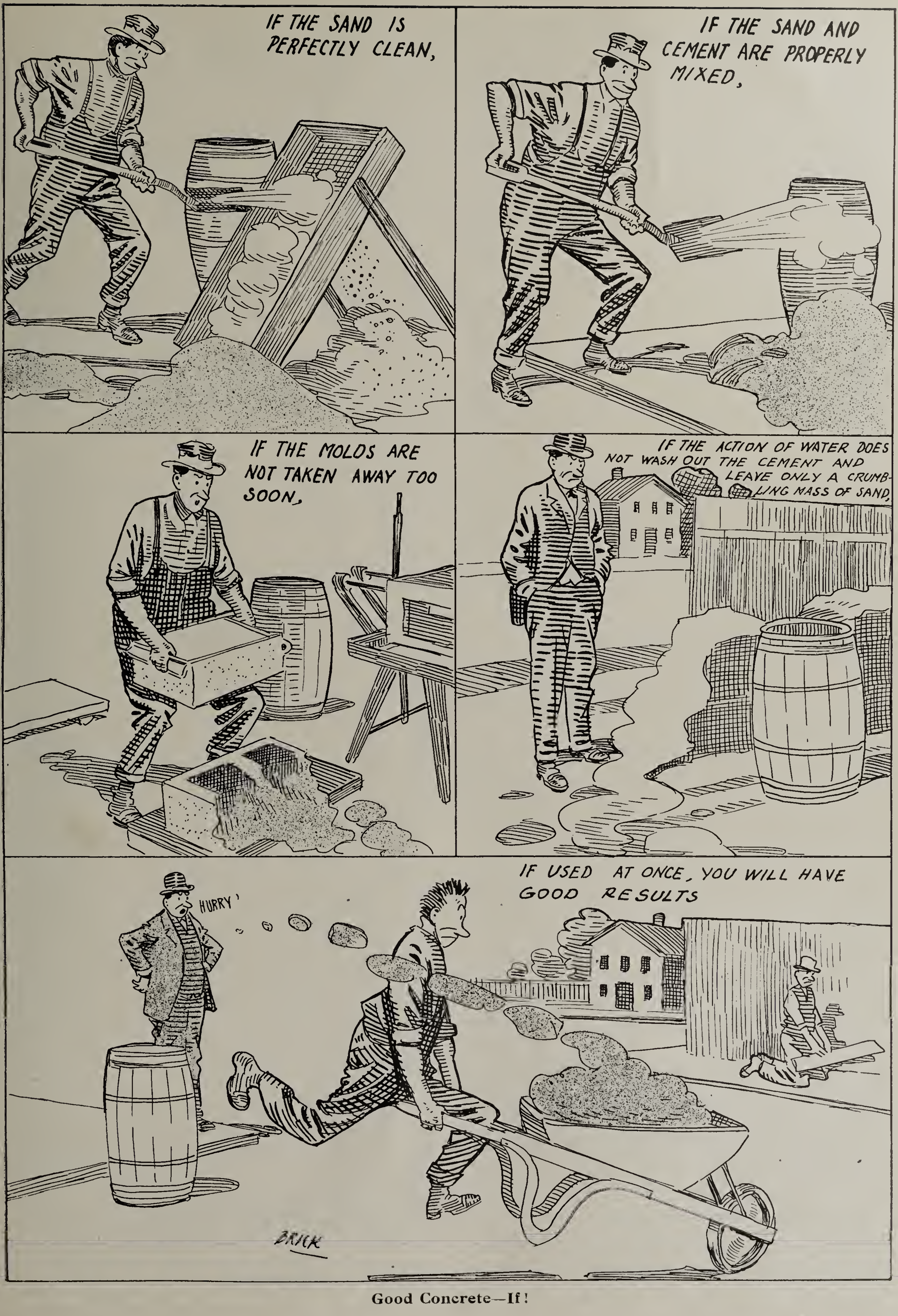
Clay products manufacturers, especially those who are interested in the materials used in the construction of homes, will make an elaborate display of their several lines at the forthcoming Ideal Home Exhibition, which is to be given in Cleveland, O., by the Cleveland Real Estate Board. The exhibit will be in the Central Armory, and will extend from May 27 to June 3.

An exhibit of especial merit will be that which is planned by a well known concern which makes clay roofing products, while several well known face brick manufacturers will have displays.

Another feature will be a modern brick home, which will be erected within the walls of the Armory in four days. Among the exhibitors will be those manufacturing pottery, both domestic and art ware; fireproofing, paving blocks and drain tile.

Three years ago the first "land show" was given in London, England. This was under the direction of the London Daily Mail. The idea "took" and it is planned by the Cleveland Real Estate Board to eclipse the London show. Especial attention is being given to the allotment of space to all clay products manufacturers.


IF THE SAND IS PERFECTLY CLEAN,
IF THE SAND AND CEMENT ARE PROPERLY MIXED,
IF THE MOLDS ARE NOT TAKEN AWAY TOO SOON,
IF THE ACTION OF WATER DOES NOT WASH OUT THE CEMENT AND LEAVE ONLY A CRUMBLING MASS OF SAND,
HURRY!
IF USED AT ONCE, YOU WILL HAVE GOOD RESULTS
BRICK

Good Concrete—If!

## THE SUNDERLAND-HAVENS DEAL.

A deal was recently concluded whereby the Sunderland Brothers, of Omaha, Neb., purchased the entire building material, brick and specialty business of C. B. Havens & Co., including their entire stock, their principal agencies, contracts and the good will of the business.

C. B. Havens & Company was organized as a partnership in 1886 and was incorporated with a capital of $100,000 in 1891.

The Havens Company has been operating three retail yards and several warehouses in various parts of Omaha and it is understood the extensive stock of building materials and brick will be transferred to the different Sunderland yards and warehouses.

The C. B. Havens & Co. has been an important factor in the building material business in Omaha and the acquisition of the Havens interests by the Sunderland Co. makes the latter the largest and best equipped concern in the building material line in the west.

The officers of Sunderland Brothers Company are, James A., Lester T., and Ralph E. Sunderland and James A. Rockwell and the company organized twenty-eight years ago, now represents assets of not less than half a million dollars.

The Sunderland Brick Co. is using every effort to bring to the attention of the public, the superior qualities of brick as an artistic as well as durable building material. These qualities are set forth in a booklet, in an attractive manner with numerous illustrations of handsome buildings in which their brick have been used, including the Wise Memorial Hospital, Omaha, and the First Baptist Church, Wayne, Neb.

## ANOTHER CONCRETE FATALITY.

Four men lost their lives, and fifty others narrowly escaped a similar fate, in New York last week, when the cement fireproofing between the floors of an eight-story apartment building, in course of construction, collapsed and fell to the basement.

Two distinct explanations of the accident were given. The first is that the fireproofing on the first floor above the ground proved too weak to support that above it and gave way first.

On the ground floor was a donkey engine, used for hoisting material to the upper floors of the building, and, it was pointed out, the constant vibration caused by the working of the engine may have loosened the cement in the floor above it. There were no upright supports between the ground and second floors, say the police, and had the fireproofing in the latter become dislodged the floors above it would have had nothing to support them, they say.

The other explanation for the accident is that the part of the cement laid the day before failed to harden quickly enough and that it collapsed as soon as the workmen left. The weight of this material plunged suddenly upon the next lower floor, the police were told by a man who said he was in the building at the time the accident happened, caused the fireproofing on the seventh floor to give way and so in turn each of the lower floors fell in as the weight from above became constantly greater.

This is only another striking example of the uncertainty and lack of safety of cement construction.

## CHANGES NAME.

The Brandon Brick & Lumber Co., Ltd., Manitoba, has changed its name to Brandon Sand-Stone Brick Co., Ltd. They manufacture sand-stone brick.

## ADVANTAGES OF FUEL OIL.

Tate, Jones & Co. of Pittsburg, Pa., have been attracting considerable attention with their new equipments for burning fuel oil, both in power plants and for burning clay wares. They have figured it down to a fine point and are able to give exact figures in dollars and cents on the cost of burning.

They are acquainting the public with interesting and reliable data in this field by the distribution of booklets on this subject. In one of recent date, circular 133 A, they give information as to the labor, time, price, etc., in an itemized form for installing and using oil and gas for manufacturing purposes with especial application to the ceramic industry. Among the advantages cited for the use of oil for drying in preference to coal are the following: The absence of smoke and soot. The gross amount of heat required. A minimum amount of attention. The possibility of closer regulation. Minimum amount of repairs to furnace. The absence of sulphur's detrimental effect. The absence of ashes carried into the dryer. The saving of grate bars and fire brick. The general economy in burning oil.

## NEW DRYER AND ENGINEERING COMPANY.

The latest addition to the clay industry is the Trautwein Dryer & Engineering Co., of Chicago, which has entered the clayworking and drier field under the most favorable auspices. The new firm will engage not only in the designing and equipment of waste heat driers, but will also act as engineers for the construction of clay working plants.

The name Trautwein has long been prominently identified with the waste heat drier branch of the clay industry. Mr. J. O. Trautwein, the president of the company, has been prominently connected, until recently, with the L. E. Rodgers Engineering Co., of Chicago, and has been engaged on some of the most important drier installations erected in this country. Through long experience, technical and practical training he has acquired a knowledge of this branch of the business which has made his services of great value to clay products manufacturers. He is a recognized authority of drying of clays, especially by the use of waste heat from cooling kilns.

The construction of power plants for the economical use of fuel with proper piping facilities, has been carefully developed by Mr. Trautwein. He is a member of the American Society of Heating Engineers, composed of the most able men in that profession, and in the past has designed heating systems for almost every type of building. His technical education has been added to by special studies on lines of which he is making a specialty.

While the application of waste heat to the drying of clay products has been used for a number of years, its more practical use was made possible by his careful and persistent study. Special systems, both in drier design and apparatus, have been carefully devised by him and the same policy will be carried out by the new company as has made Mr. Trautwein's past work so successful.

In addition to the drying of clay ware, this company will conduct a general engineering business for designing and supervising the erection of modern clayworking plants, and will be glad to correspond in an advisory capacity with clayworking concerns regarding difficulties of manufacture which they may wish to overcome.

The Trauntwein Dryer & Engineering Co. occupies handsome offices in the Plymouth Building, 303 Dearborn street, Chicago, where clayworking manufacturers will always find a hearty welcome.

# TERRA COTTA AND FIREPROOFING

## REPORT OF NATIONAL FIREPROOFING CO.

The National Fireproofing Co., one of the largest and most prominent manufacturers of fireproofing, with numerous large plants scattered throughout the country, with offices in almost every large city, is planning to still further increase its usefulness.

No sooner had the annual report of this company been mailed to the stockholders, when the announcement was made that everything was ready to let contracts for a new plant. This additional capacity will be provided for at Elkton, Md., and is built there in order that the trade in all the large eastern cities can be taken care of with speed.

Excellent fire clay deposits have been secured. Property was bought last summer for the site of the new works, and the contracts for construction will be signed at an early date.

In his report to the stockholders, March 1, President W. D. Henry Says:

"The earnings for the year after deducting extraordinary charges for repairs, maintenance, etc., were $531,370.07. The current assets over current liabilities were $2,765,520.47. The undivided surplus, after making all deductions, including extraordinary expenses and $100,000 reserve for depreciation, was $1,356,089.20. During the year, your company expended for improvements to its plants and for additional new properties, over $190,000. A part of the said sum was paid for a tract of land at Elkton, Md., on the line of the Philadelphia, Baltimore & Washington railroad, upon which it is intended to erect a modern plant. The efficiency of the plants was not only fully maintained, but improved, there having been expended for that purpose a sum in excess of $200,000, which amount is included in operating expenses, and is in addition to the $100,000 added to reserve for depreciation.

During the early part of 1910 your company joined with certain financial interests in the city of Toronto for the purpose of acquiring property in the Dominion of Canada and erecting factories thereon, in order to enlarge its fireproofing business in that country. Satisfactory arrangements were entered into with the parties in interest and a company was formed with a capital of $1,000,000, under the corporate name of National Fireproofing Co. of Canada, Ltd., the National Fireproofing Co. of the United States receiving as its interest therein 60 per cent of the stock issued by the Canadian company.

"Ground was broken near Hamilton, Ontario, in August, 1910, and there is now in course of erection a modern plant, which it is expected will be completed and ready for operation by June 1. It is confidently expected that this plant will be a success, as there is a large amount of business offering in Canada.

"For the proper financing of the undertaking herein described, it was deemed advisable by your board of directors to sell from the treasury $500,000 of bonds, maturing in 1915 and 1916.

"Bonds in the sum of $250,000, which matured April 1, 1910, were paid and $67,000 of the $250,000 which mature April 1, 1911, have been purchased. Great interest is being manifested in Natco hollow tile for residence construction by architects, builders and owners. It has been proved that this particular system of construction, especially designed for your company, is the best, not only for the most expensive, but also for the least expensive, residence. The books and accounts have been audited by Price, Waterhouse & Co., chartered accountants, and their certificate forms a part of this report."

The balance sheet, as at December 31, 1910, is as follows:

| | | | |
|---|---|---|---|
| Cost of property and equipment...... | | | $12,962,368.73 |
| Current assets: | | | |
| Inventories .......................... | | $ 898,951.48 | |
| Notes and accounts receivable........ | | 1,411,255.39 | |
| Bonds and stocks....................... | | 238,232.30 | |
| Cash in banks and on hand........... | | 580,311.19 | |
| Total current assets........... | | | 3,128,750.36 |
| Total assets ..................... | | | $16,091,119.09 |
| LIABILITIES: | | | |
| Capital stock (issued) | | | |
| Preferred stock ...................... | | $7,900,500.00 | |
| Common stock ........................ | | 4,461,300.00 | $12,361,800.00 |
| Mortgage bonds outstanding.......... | | $1,500,000.00 | |
| Mortgage assumed on land purchase. | | 10,000.00 | 1,510,000.00 |
| Current Liabilities: | | | |
| Accounts payable ..................... | | $ 265,474.89 | |
| Bond interest accrued................ | | 18,750.00 | |
| Dividend No. 51, payable January 15.. | | 79,005.00 | |
| Total current liabilities.......... | | | 363,229.89 |
| Depreciation Reserve: | | | |
| Depreciation reserve ................ | | | 500,000.00 |
| Surplus: | | | |
| Balance, January 1, 1911............. | | $1,265,759.13 | |
| Add earnings for the year ended December 31, 1910, deducting bond interest, but before providing for depreciation of plants............. | | 531,370.07 | |
| | | $1,797,109.20 | |
| Dividends on pref'd stock.. | $316,020.00 | | |
| Bond discount ............. | 25,000.00 | | |
| Appropriation .............. | 100,000.00 | 441,020.00 | 1,356,089.20 |
| Total liabilities ................. | | | $16,091,119.09 |

The statement for 1910 compares as follows:

| | 1910 | 1909 | 1908 |
|---|---|---|---|
| Net Earnings ....................... | $531,370 | $467,834 | $ 41,080 |
| Depreciation ........................ | 100,000 | 100,000 | 100,000 |
| Balance ............................. | $431,370 | $367,834 | *$ 58,911 |
| Pref. Dividends ..................... | 316,020 | 79,005 | 79,005 |
| Balance ............................. | $115,350 | $288,829 | *$137,916 |
| Bond Discount ...................... | 25,000 | | |
| Surplus ............................. | $ 90,350 | $288,829 | *$137,916 |

Net earnings in 1907 were $502,233 against $943,180 in 1906, $472,053 in 1905 and $636,939 in 1904. The excess of current assets over current liabilities was $2,765,520, or over 33 1-3 per cent of the $7,900,500 preferred stock.

*Deficit.

This report shows the National Fireproofing Co. to be enjoying a steady growth in business, and that the sale of hollow tile for home and residence construction work is growing daily in popular favor. The physical condition of the various plants of this corporation is in better shape than ever before. During the last fiscal year about $200,000 was spent in improving these properties.

This amount is charged to operating expenses. In addition $100,000 has been charged off for depreciation. And, in spite of these heavy exactions, the company earned nearly six per cent on the $7,900,500 outstanding preferred shares.

During the year dividends at the rate of four per cent were maintained.

A comparative statement for 1909 and 1910 follows:

| ASSETS. | 1910 | 1909 |
|---|---|---|
| Property | $12,962,368 | $12,819,402 |
| Inventory | 898,931 | 802,292 |
| Notes and accts. rec. | 1,411,255 | 1,146,051 |
| Bonds and stocks | 238,232 | 122,468 |
| Cash | 580,311 | 715,768 |
| Total | $16,091,119 | $15,605,984 |
| LIABILITIES. | | |
| Preferred stock | $ 7,900,500 | $ 7,900,500 |
| Common stock | 4,461,300 | 4,461,300 |
| Bonds | 1,500,000 | 1,250,000 |
| Mortgage | 10,000 | 10,000 |
| Accts. payable | 265,474 | 223,814 |
| Bond interest | 18,750 | 15,625 |
| Dividend | 79,005 | 79,005 |
| Depreciation reserve | 500,000 | 400,000 |
| Surplus | 1,356,089 | 1,265,739 |
| Total | $16,091,119 | $15,605,984 |

The profit and loss accounts follows:

| | |
|---|---|
| Surplus, January 1, 1910 | $1,265,739 |
| Earnings, 1910 | 531,370 |
| Total | $1,797,109 |
| Dividends | $ 316,020 |
| Bond discount | 25,000 |
| Depreciation | 100,000 |
| Surplus, January 1, 1911 | $1,356,089 |

The East Palestine (O.) plant of the National Fireproofing Co., which is located about one mile east of that place on the Ft. Wayne railroad, burned Sunday morning, Feb. 26, creating a loss estimated at this time of $75,000. The works closed Feb. 1, in order that improvements might be completed and additional machinery installed. The chief offices of the company are in the Fulton Bldg., Pittsburg, Pa.

The origin of the fire is unknown. The superintendent of the works had made a tour of the plant just a few minutes before the fire started.

## FIREPROOFING BLOCKS IN MODERN RESIDENCE CONSTRUCTION.

It does not require a very extensive outlay of money to buy enough fireproofing hollow blocks to build a modern residence, say one, whose owner desires to have his home completed for from $5,000 to $7,000.

Herewith is shown two photographs of a fireproof home, built at moderate cost at Canton, O., by W. E. Mason. One picture relates to the early stages of construction, the third, shows the completed home, with two bright lights and a teddy bear calmy and patiently awaiting the home-coming of "Daddie."

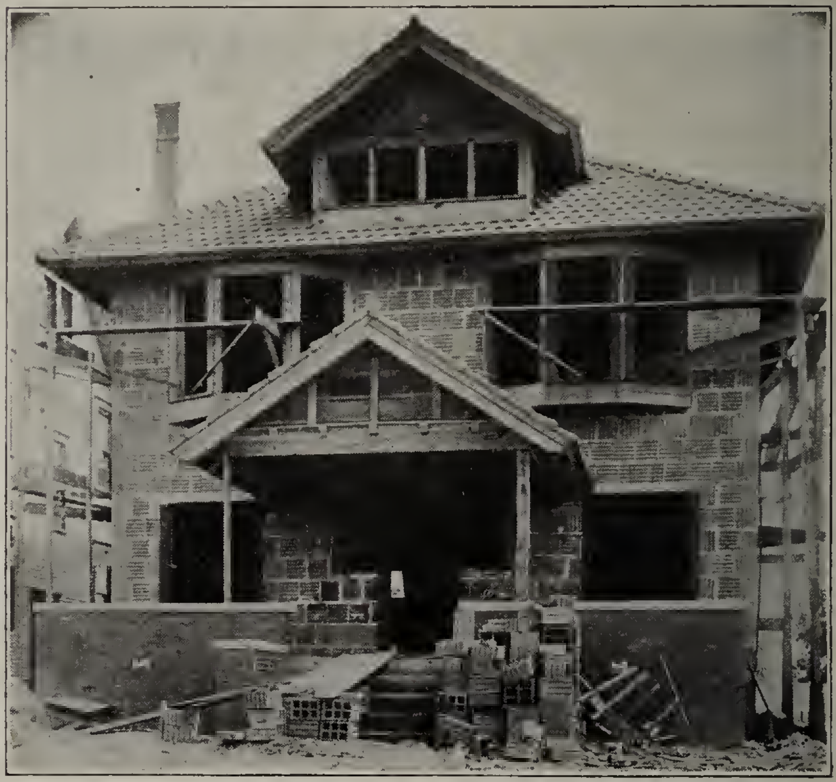
About three small car loads of National Fireproofing building blocks were used in the construction of this home at an estimated cost of $275. Above the windows can be seen the jack arch blocks, while the jamb block for windows was used. Inside the house, the hollow tile was cut out and in these openings the joists were placed.

From the foundation top to the first floor a red pressed brick was used and the same character of brick was used for the chimney complete, which is shown in the picture of the completed home.

In all about six thousand brick was used, and the total cost for all clay materials used in this home was in the neighborhood of $700.

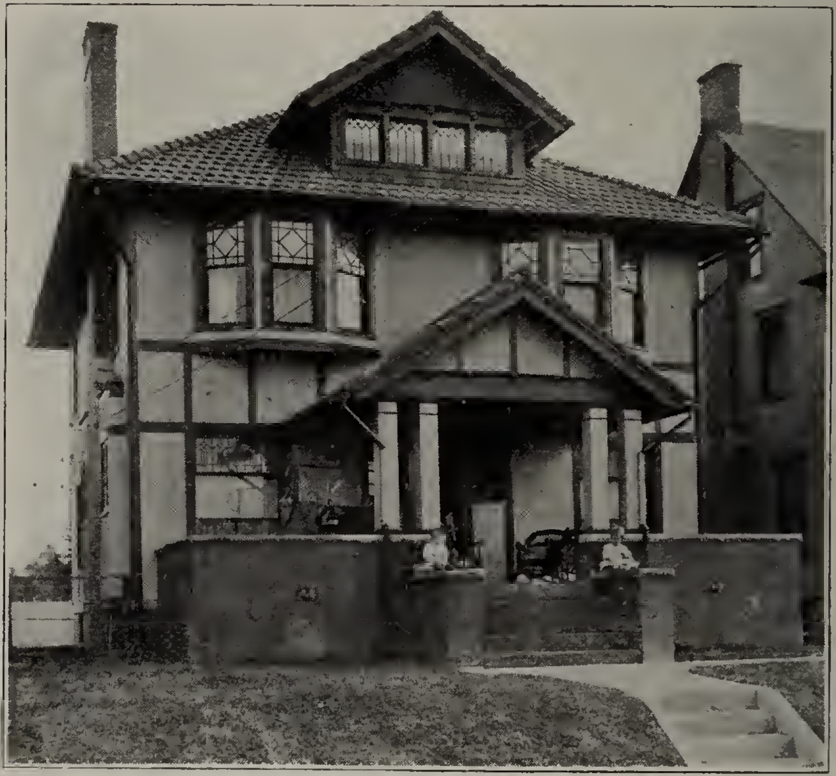
There are four apartments or rooms in the basement, each having a wall of fireproofing hollow tile blocks.

The roof is also of tile, this being made from roofing tile and at a probable cost of $300.



Hollow Block Residence Under Construction.

For small house construction, there is no better example of the great use, small cost and advantage of the hollow fireproofing material.



Completed Hollow Block Residence.

The exterior of this house is stucco work, and the home is one of the neatest in eastern Ohio.

## CONCRETE BRIDGE CRACKS.

Considerable comment has been occasioned by the large cracks and crevices which are appearing in the arch and wings of the concrete bridge under construction near Rockport, Ind. Although grade piling were driven in and set in concrete, the ground has given away causing the concrete to crack. The bridge will cost $10,000 when completed.

## READY FOR BUSINESS.

Now that the winter's back is broken and the dull months of January and February are past, there is shown a decided revival of business, and if trade signs are reliable, 1911 should be a year of notable activity in the clay industry.

The beforehanded manager has grasped opportunity by the forelock and have taken the opportunity afforded by the usual winter "lay-off" to overhaul his plant and now has things in "applie pie" order for a steady season's run without the annoyance of frequent shut downs for repairs.

Manufacturers of clay wares, after several years of cutting each other's throats, have finally awakened to the utter absurdity of two or more firms in a district engaging in a rate warfare. Brick and tile yards are necessarily only able to supply a comparatively small area and it is far better for them to work on amicable terms than to undersell each other until the builder is the only person to benefit. Men who start brickyards of their own would do well to build near a medium-sized town, and plan to supply home demands, using their utmost endeavors to keep prices up.

Price-cutting may be a necessity in times of declining trade, but when trade is increasing fairly rapidly it is ridiculous that it should be continued. Arrangements between two or three firms are often found to be quite feasible and satisfactory to all concerned.

## RIGHTS OF EMPLOYERS, UNION AND NON-UNION MEN.

An employer has the right to fix the terms and conditions upon which he is willing to give employment. An employe has the right to fix the terms and conditions upon which he will labor. Both parties are free to enter into, or refuse to enter into, the contract. The right of an employer to refuse to employ any particular individual, or any class of individuals, is neither greater nor less than the right of a man to refuse to work for any particular individual, or class of individuals. The reason for the refusal can in no wise control, enlarge, or diminish, the legal right of refusal, the right to employ, or the right to refuse to be employed.

This is said by the United Circuit Court in the case of the Goldfield Consolidated Mines Co. v. Goldfield Miners' Union No. 220, 159 Federal Reporter, 500, where, referring to the case before it, the court further says that each party had the right to enter into lawful competition for the support of the non-union miners, and to endeavor by peaceful argument or persuasion to secure their co-operation, provided the persuasion was of such a character as to leave the person solicited feeling free to do as he pleased, and he was not persuaded to do that which in him would be unlawful. This was so, because workmen, when free from contract obligations, have a legal right, singly, collectively, or as a union, to quit work; that is, to strike, and, having this right, they have the further right to use such lawful means to make the strike effective as are not inconsistent with the rights of others.

The mining company had the right to employ non-union men to take the places vacated by those who quit work. The latter had no legal interest or concern in the contract between the company and its new employes. The places which they vacated to strike were no longer theirs, and never again would be theirs unless they were re-employed. Non-union men have the same right to work or not work, to agree upon the terms of employment, or to quit work, as union men, no more, no less. They have a perfect right to take the vacated jobs if they can agree with the company upon terms, and the union men have no legal right to dictate what those terms shall be. They have the right to seek employment, to come and go from their work, or to go where they please on the public thoroughfare, without fear or molestation, threats, violence, or insult of any kind. They have a right to come and go without being picketed, compelled to listen to arguments or persuasion, whether it be peaceful or irritating.

## GOVERNMENTAL ADVICE.

Miners' Circular No. 1, the first of a series to be written in plain, non-technical language for the benefit of the miner, has just been issued by the Federal Bureau of Mines. It contains the names of the permissible explosives tested by the bureau at its Pittsburg station up to November 15, 1910, and gives precautions as to their use. This advice is equally applicable to the clay plant, where many explosives are used.

To reduce the risks in storing, thawing, and handling explosives at coal mines, the following precautions are urged by the Bureau of Mines:

Don't store detonators with explosives. Don't open packages of explosives in a magazine. Don't open packages of explosives with a nail puller, pick or chisel.

Don't store explosives in a hot or damp place. Don't store explosives containing nitroglycerin so that the cartridges stand on end. Don't repair a magazine until all explosives are removed from it. Don't use permissible explosives or other explosives that are frozen or partly frozen.

Don't thaw frozen explosives before an open fire, in a stove, near a boiler, near steam pipes, or by placing cartridges in hot water.

Don't put hot water or steam pipes in a magazine for thawing purposes. Don't carry detonators and explosives in the same package. Don't handle detonators or explosives near an open flame.

Don't expose detonators or explosives to the sun for any length of time. Don't open a package of explosive until ready to use, then use it promptly. Don't handle explosives carelessly.

Don't use more than 1½ lbs. of any permissible explosive for one shot in a coal mine. Don't use a detonator (blasting cap) or electric detonator of less strength than No. 6. Don't crimp a detonator (blasting cap) around a fuse with the teeth.

Don't economize by using a short length of fuse. Don't use coal cuttings or "slack" or any combustible material for stemming. Don't use a metal tamping rod. A copper tipped rod is not to be recommended. Wooden rods are safer.

Don't use two kinds of explosives in the same drill hole. Don't return to the face until at least 5 minutes after a shot has been fired. Don't breathe the gases from the shot.

Don't return to the face after a misfire for at least one-half hour. Don't attempt to draw the charge in case of a misfire. Don't leave any detonators or explosives in a mine over night.

Don't charge or load any hole which has not been properly placed or has been drilled "on the solid." Don't light the fuse of dependent shots at the same time the first shot is lighted.

Don't expect to get satisfactory results with a permissible explosive or any explosive when a miner uses it for the first time. Don't think the use of permissible explosives can take the place of other safety precautions in mines and thus neglect those precautions.

## VITRIFYING BRICK.

It is very difficult to suggest a remedy, if the vitrifying point lies near to the ordinary finishing temperature of the kiln. If they are 500 deg. apart, it may be possible to add ground chalk to the brick, and so produce a more satisfactorily vitrified article, but without trial no one can say whether this may not cause the goods to twist and warp.

Vitrified brick of well known brands are usually made of clay which contains sufficient lime to effect the necessary fusing, but at the same time the bulk of the material is so heat-resisting that the brick are able to retain their shape.

It would probably be better to add some material such as sand to the present brick, so as to make them able to stand a higher temperature, that the present scum-forming materials may be melted without seriously affecting the shape.

The best way of preventing these unsightly whitish patches is certainly to heat to vitrification, and if the present material will not stand it alone it must be made more heat resisting by adding sand or fireclay.

As we understand it, there is no need to produce a vitrified brick, so long as all scum-forming salts are vitrified.

Have you a kiln which is too short in proportion to its width? This is a common fault with continuous kilns, and a frequent cause of scummed brick. If the "waste gases" from the burning brick are allowed to touch fresh brick at too low a temperature, such scumming is inevitable and is almost always present in kilns with less than 10 chambers. The most satisfactory remedy is to lengthen the kiln without increasing the output. A less satisfactory method is to turn the waste gases into the chimney at a temperature of 400 to 500C., but this is very wasteful in fuel, and fails to take advantage of the chief reason for using a continuous kiln. Some clays contain so much soluble salt that scumming is inevitable, but there are several firms, working practically the same clay bed, who avoid scum almost completely, and it appears probable that the kiln or the manner of burning may be at fault rather than the clay.

The chief advantage of a vitrified brick is that it will not pick up scum-forming materials from the foundation or mortar after being built, but it is harder to lay.

## SETTING A CONTINUOUS KILN.

An experienced superintendent comments on the setitng of a continuous kiln as follows:

It is curious to notice how many men who have worked for some months or even years, with a continuous kiln, never acquire the art of setting the goods in the kiln to the best advantage. Some men persist in setting the brick at right angles to the proper direction, so that the "flue-spaces" between the brick run across the kiln, instead of in the same direction as the fire travels. Others set the brick correctly, but so irregularly as to seriously interfere with the draught.

Some setters are greatly helped by the use of laths lowered through the pot holes and fixed vertically in the kiln. Such laths should be cut out along one edge, so as to guile the setters as to when to set headers and when stretchers. This method is better than painting marks on the laths, as the indentations can be felt in the semi-darkness which usually prevails when a kiln is being set. It is, of course, necessary to leave pockets through which the fuel may fall when the laths have been removed and the kiln is under fire. These pockets also form ledges on which some fuel remains, and thereby secures a more uniform heating of the kiln. In the ordinary way of setting, the coal falls in great part to the bottom of the kiln, and the heat is irregularly distributed.

The use of laths in the manner named has also the advantage that it secures the proper proportioning of the trace holes or flues at the bottom of the kiln.

A method of setting the brick which has certain obvious advantages, consists in setting the brick as headers almost throughout, their ends butting on each other so as to form a sufficient support. The brick on the outer side should be set somewhat more openly than the rest. This method of setting enables the ordinary trace holes to be dispensed with, if desired, providing that cross flues are substituted. In long chambers small openings should be left. In most cases, however, it is better to work with trace holes.

## TO MOVE A STUBBORN BOLT.

Bolts and screws which will not move under ordinary conditions may often be released by "drifting." For this purpose, a pointed chisel is placed near the edge of one of the faces of the bolt or at one end of the top-cut of a screw and by repeated, gentle taps with a hammer the chisel made to force the bolt or screw round. By this simple means, the most obstreperous screw or bolt may be moved, after a short time. There is little risk of damage, except that the screw may sometimes be so corroded that the head may be forced off the shank.

## WEIGHT OF BUILDING MATERIAL.

The following convenient table of the approximate weight per cubic foot of building material, has been furnished *The Southern Architect and Building News*, by a leading architect and consulting engineer:

| Material. | Weight. |
|---|---|
| Metals. | |
| Bronze | 552 |
| Copper | 550 |
| Iron, Cast | 450 |
| Iron, Wrought | 480 |
| Lead | 712 |
| Steel, Structural | 490 |
| Timber. | |
| Cedar | 23 |
| Chestnut | 41 |
| Cypress | 29 |
| Fir | 32 |
| Hemlock | 25 |
| Oak, White | 50 |
| Pine, White | 24 |
| Pine, Yellow | 35 |
| Spruce | 25 |
| Masonry. | |
| Asphalt | 130 |
| Blue Stone | 160 |
| Brick in Lime | 120 |
| Brick in Cement | 130 |
| Cement, Portland | 90 |
| Concrete | 140 |
| Gneiss | 160 |
| Granite | 165 |
| Gravel | 120 |
| Limestone | 170 |
| Marble | 165 |
| Sandstone | 145 |
| Slate | 170 |
| Terra Cotta | 110 |
| Tile | 115 |

# THE PAVING BRICK INDUSTRY

## A LARGE CONTRACT.

What is possibly one of the largest paving brick contracts ever let in Pennsylvania, at one time, has just been awarded to the Clearfield Clay Working Co., of Clearfield, Pa., through their secretary, Mr. R. L. Winslow, by the city of Altoona, Pa. The work calls for the delivery of approximately 7,000,000 paving block to the city of Altoona, which will expend $300,000 in street improvements during this year. Over fifty different streets are to be paved with vitrified brick, the entire contract going to the Clearfield Clay Working Co. on their first quality "Clearfield Block."

This is further evidence of the popularity of vitrified brick as a paving material in the eastern states. Reports from that section indicate prospects for a large amount of work to be done with vitrified brick this year.

The city engineer of Altoona, Mr. Frans Engstrom, is devoting special attention to brick paving, and it is expected and he so hopes that Altoona will have some of the finest paved streets in Pennsylvania. Throughout this entire work special attention will be given to the construction, which will be of the very latest, up-to-date methods.

The competition for a contract the size of this was naturally very keen, not less than fourteen different brick companies bidding on the work. Brick being offered from West Virginia, Pennsylvania and Ohio. The Clearfield Clay Working Co., although underbid by a number of firms, secured the "plum" after an exhaustive investigation, tests, etc., of their brick.

This company is one of the oldest and most widelv known paving brick firms in the eastern part of the United States, having been manufacturing brick for over twenty years, consequently their brick is well and favorably known. Their plant has not been shut down a single day for over twelve years, except in case of accident. Some of the brick for this Altoona work are being manufactured at the present time and will be stored at their yard awaiting instructions to ship. Their ability to ship promptly in large quantities was a strong argument in their favor in bidding for this work. It will require over four months time for them to get out material enough for this one contract.

It would be well for other cities to emulate the example of Altoona in their public highway construction. There is no doubt that vitrified brick streets, properly constructed, are the most economical, sanitary and from all points the best paving today. In this, Altoona has taken first rank in the cities of the East. Others should follow her example.

## LIKES BRICK PAVING.

The city of Vinton, Ia., has 18 blocks of streets paved with brick, and there are in the hands of the city clerk petitions for paving 35 blocks more.

## PAVING PLANTS BUSY.

Paving brick and block manufacturers in West Virginia have been able to dispose of their year's run to good advantage.

## OHIO PAVING NEWS.

Paving brick contractors in the state of Ohio are much interested in the proposals which are being asked for by the various cities on work which is to be started this spring.

Without doubt more brick highways will be built in the Buckeye state this year than ever before. Municipal engineers have been giving the subject much study during the past, and have reached the conclusion that brick and paving bdock are the only proper thing to use for highway construction work, as they have the lasting qualities which are the necessary requisites of paving material.

The Alliance (O.) Clay Products Co. has recently received a large order for paving block from Michigan, 1,000,000 speedway block being ordered for road building.

## PAVING NOTES.

A plant is being constructed at Hastings, Neb., for the manufacture of paving block.

F. R. Gangengeiser, Sharon, Pa., is organizing a company with a capital of $100,000 for the manufacture of paving block. The company expects to take over the J. V. Rose Brick Yard, Brookfield Township, Ohio, which has not been operated for the past year. Shale with excellent qualities for making paving block is said to be abundant near the works. The product will be called the Sharon Paving Block.

The Alton (Ill.) Brick Co., which has furnished the brick to pave more than 30 miles of streets in Alton, will establish an office in St. Louis which will be in charge of R. L. Mernagh.

## BRISK DEMAND FOR PAVERS.

Our Texas correspondent informs us of paving prospects as follows: One of the features of the brick business in this section, that is particularly noticeable of late is the increased demand for pavers. The era of experimenting with asphalt and wooden block paving materials by different towns in Texas as well as in Mexico seems to be about over and brick pavers are coming into demand more and more. In such cities as Austin, San Antonio, Houston and Beaumont there promises to be many blocks paved with brick during the present year. Tentative plans for these improvements are being made. In Austin, where the first brick paving was put down only a few years ago, it has met with such universal favor that arrangements are being made to pave many additional streets with the material. Vitrified brick is also being used in many towns where it is found necessary to repave asphalt streets.

The revolutionary disturbances in Mexico are causing several extensive projects of some of the larger municipalities for street paving, in which it was proposed to use vitrified brick, to be held in temporary abeyance. It is expected, however, that within the next few weeks the troubles will have been so placed under control as to enable the carrying out of these improvement plans.

## PAVING NOTES.

It is an evidence of the notable advancement of our cities in the matter of civic improvements to note the records for paving for the past year, showing the increasing use of brick as a paving material.

### Newark's Record for Paving in 1910.

Newark, N. J., paid the sum of $474,231.89 for new paving work in the city streets during the year of 1910, and an additional amount of $116,174.04 was paid for grading, curbing and flagging. In all, the city laid 8.31 miles of new pavement during the year, together with .307 mile under private contracts. The brick paving, of which there was laid 88,791 square yards, amounted to 24,226 lineal feet, cost $246,903.65, including inspector's fees, advertising and other expenses.

### Indianapolis Street and Sewer Work in 1910.

During 1910, in Indianapolis, according to City Engineer Klausmann, nine street improvement contracts, let the previous year were completed at a cost of $143,682. Contracts let in 1910 were completed at a cost of $161,483. In the sewer department 21 contracts let in 1909 were completed, the cost being $120,692.88, while two 1909 contracts were uncompleted. Eleven contracts let in 1910 were finished and accepted, at a cost of $37,039.41, and eight contracts were completed but had not been accepted January 1. In the city engineer's inspection department 3,162 lineal feet of curb, 384,000 paving brick and 4,800 feet of sewers were condemned during the year.

### El Paso's Paving Record.

Six miles of paving was laid in El Paso in 1910, and as much more is planned for 1911. Six miles of cement sidewalks were also laid. El Paso now has 60 miles of graded and paved streets, 24 of which are bitulithic or petrolithic. The revolving fund, from which the property owners borrow the money to pay the assessment, is responsible for the progress.

## NEW PAVING PLANT.

A stock company is being organized in Sharon, O., with a capital of $100,000 to take over the J. V. Rose fire brick plant in Brookfield township, O. Vitrified shale paving block will be manufactured. The plant has not been in operation for more than a year. The Sharon Board of Trade will meet Monday night, at which time the deal probably will be consummated. F. R. Kanengeiser, of Youngstown, who until recently was general superintendent of the Bessemer Limestone Company, is promoting the deal. A large amount of new machinery will be installed. There is an abundance of shale in eastern Ohio and the projectors are enthusiastic over the new enterprise.

## PAVING PROSPECTS.

Reports from all parts of the country indicate that there will be a large amount of paving done this year in all up-to-date cities. Many cities after experience with other materials, have decided that brick is the material par excellence for wearing qualities.

Among the paving prospects are a number of streets to be paved at Muncie, Ind., with brick; 41 blocks of brick paving to be done in Topeka, Kans.; Hutchison, Kans., will pave a number of streets with brick; Mt. Sterling, Ky., expects to use brick in a number of streets.

Mankato, Minn., will pave a number of blocks with brick. Madison, Wis., will spend about $250,000 on permanent street improvements, of which a goodly proportion will be for brick streets.

## BRICK ROAD PROVES VERY SATISFACTORY.

For the period of a year a stretch of brick road, connecting the boroughs of Canonsburg and Houston, Pa., the first ever constructed by the county commissioners under the Flinn law, has been thoroughly tested, and so far has proven highly satisfactory. Teamsters who have occasion to travel between Canonsburg and Houston are delighted when, after mud inches deep, they reach this brick section, which remains as solid as the best paved street. The commissioners figure that this section of brick road should last a half century with comparatively litle repair.

## GOOD DEMAND FOR PAVERS.

A correspondent informs us that not many pavers are being used in Kansas City, but the demand from surrounding cities is greater than it has ever been before, and plants turning out a brick that will do for paving purposes are still sold away ahead, and seem to be able to take on new contracts at their pleasure. At the present time the paving brick is the big money-maker in the business, and as there seems to be no limit to the demand it would seem to be a matter of wisdom for plants to arrange to produce some pavers, if their shale will produce a brick with a fair degree of toughness after it is vitrified. It is the common brick which oftenest becomes a drug on the market. Face brick have a regular sale, and while the prices are generally held at a point to make a profit, the demand is not so heavy as for the paving brick, which are needed all the time and in big quantities.

## PAVING NEWS.

Local salesmen at Pittsburg, Pa., who handle paving brick are very optimistic concerning the outlook for big contracts during 1911. A few weeks ago the county commissioners of Washington County awarded contracts for brick to be used in improving the Meadowlands-Houston Road, as follows:

Pittsburg Buffalo Co., one-fourth, at $15 per M.; Donley Brick Co., Washington, one-fourth, at $12.50 per M.; James M. Porter, Toronto block, at $15 per M.; and James M. Porter, American Sewer Pipe Porter block, $15 per M.

The Clinton (Ind.) Paving Brick Co. has been at work putting in a crusher and a pug mill and hopes to resume work soon after the work is done. The crusher is an addition to the plant and the pug mill replaces one that is worn out. The brick plant has been shut down several weeks, and the men will be glad to see operations resume. The plant employs the greatest number of laboring men of any industry in Clinton territory outside the coal mines.

The Salina Vitrified Brick Co., Salina, Kan., has announced that their plant is undergoing reconstruction with a view to the manufacture of paving brick which will be put on the market this season. The new departure is made possible, the company says, by the discovery of a large deposit of pure soft blue shale located under the strata that have been worked hitherto. The shale has been tested and pronounced of good quality.

## PROSPEROUS PLANT.

After a very successful year, the Saginaw (Mich.) Paving Brick Co., is preparing for the spring season. The company reports the prospects for 1911 business as being excellent. It sold more than 6,000,000 brick last year. Officers were re-elected as follows: president and manager, John H. Qualmann; vice-president, George W. Weadock; secretary-treasurer, James M. Sleeth.

# DRAIN TILE & DRAINAGE

## UNDERGROUND DRAINAGE IN TEXAS.

The plant of the Gulf Coast Brick & Tile Co., at Brownsville, Texas, is to be greatly enlarged by the installation of machinery and equipment for the manufacture of hollôw building block and drain tile. The contract for the necessary machinery has been placed with the American Clay Machinery Co., Bucyrus, O. Experiments that have been made with the clay from which it is purposed to manufacture these block and tile show that it is splendidly suited for the work. The company owns a large deposit of the clay. The capacity of the tile-making department of the plant will be sufficiently large to supply the drainage needs of the whole lower Rio Grade Valley and the Gulf Coast region of Texas. Irrigationists in those portions of the state are becoming greatly interested in underground drainage and it is anticipated by the company that the demand for the tile will be large from the very start. In the localities where this character of drainage has been tried in the valley section wonderful success has been attained in keeping the land in fine shape and in producing abundant crops. It is claimed that by means of the underground tile the alkali that underlies the land and is brought to the surface by irrigation is drained off and is thus prevented from doing injury to the surface soil.

Plant of the Luverne (Minn.) Brick & Tile Co.

## ANTICIPATE BIG BUSINESS.

C. C. Boughton, secretary of the Shelbina (Mo.) Brick & Tile Co., takes a very optimistic view of the prospects for the coming season's business. He is receiving many inquiries for tile, both from farmers of that vicinity and other sections of Northeast Missouri. From all indications there will be an unusually large amount of tiling done this year in that section, and the factory is expected to work up to its full capacity to supply the demand.

The company did a large business last season, practically all their stock of tile being sold.

This plant is one of Shelbina's prosperous and growing enterprises, and gives employment to a number of men.

## GOLDEN GATE TILE CO.

The Golden Gate Tile Co. has opened an office at its plant at Powell and Bay streets, San Francisco, with G. F. and H. N. Gray as managers.

## LUVERNE BRICK & TILE CO.

One of the thrifty plants in Minnesota is that of the Luverne Brick & Tile Co. A Brewer machine is used with the stiff mud process in the production of brick, tile and hollow block, of which one thousand carloads are the year's average output.

The company is capitalized at $20,000 and thirty employes are kept busy. A Commer 250-H.P. engine and two 100-H.P. boilers are used. Coal is the fuel used both for power and burning.

Both waste and steam heat systems are used in the drying process. The grates are both rocker and plain. Twenty thousand tons of clay and 5,000 tons of coal are the average for the year. Dynamos furnish electric light for the plants and grounds. The company's business has grown so that a gradual increase in capacity is necessary. Mr. R. B. Hinkley is president and C. M. Sheriff, superintendent. During the past year 3,000,000 brick were made and practically all sold, with good prospects for next season's business.

## CREDIT ASSOCIATION.

The Tile Dealers' Credit Association, of Detroit, reports that during its first year it has had a very successful period, and that dealers throughout the city now realize its worth, where last year they questioned whether or not it could carry out its plans. This association is for the protection of its members in credits and the promotion of the trade in general. It is affiliated with the national association. The local body sent Charles C. McClosky as its delegate to the national convention in New York. Officers recently elected by the Detroit body are president, George F. Mehling; vice-president, H. J. Borgne; secretary, C. C. McClosky; treasurer, Thomas E. Beck.

## WILL MOVE PLANT.

Frank L. Thomas, of Plymouth, will move his tile factory, located near La Paz, Ind., to the farm of Mrs. Laudeman, southwest of Bremen. He will erect a $25,000 plant.

## NEW IOWA PLANT.

The Holman Brick Co., Sioux City, Ia., will begin manufacturing drain tile in the near future.

# SEWER PIPE NEWS

## THE UNION CLAY MANUFACTURING CO., EMPIRE, O.

Although construction upon the new plant of the Union Clay & Manufacturing Co., at Empire, O., was started late last summer, the firm only commenced manufacturing sewer pipe recently. The exterior finish of this factory is unlike anything in the clay line in the Ohio Valley, or for that matter in Eastern Ohio, Western Pennsylvania and West Virginia.

Stucco finish was used in completing the plant, and the appearance of the building has been the subject of considerable favorable comment among those interested in the industry. While the stucco work is of a light texture, the cross wood work is done in a dark brown. The building which occupies a site 250 by 100 ft., is the largest of the kind ever finished in this vicinity with stucco.

New Plant of the Union Clay Manufacturing Co., Empire, O.

In a recent issue of this journal, there was a complete description of this property, which is operated under the management of George Myers, formerly of Toronto, O. Mr. Myers is also in charge of the sales department.

Eight kilns have been completed, and a number of others are to be built later. Construction on four additional kilns has started, and these will be finished within a month.

The plant will be operated by electricity in a number of departments, and electric machinery will be used in the mine. Railroad sidings have been built from the Cleveland & Pittsburg railroad, a branch of the Northwest System of the Pennsylvania Railroad. Electric power is being procured from the Ohio Valley Scenic Railway Co., which passes the property on the south, overlooking the Ohio River.

Besides rail shipments, it is possible to load on the Ohio River, for with a nine-foot stage twelve months in the year, heavy shipments can thus be made to the southern markets at a greatly reduced freight rate.

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Mr. Harry B. Fox of Peru, Ill., has purchased a large brick manufacturing plant at Sparta, Mich.

## SEWER PIPE PROSPECTS.

There is no denying the fact that brick and sewer pipe manufacturers are about to enter upon one of the busiest years in a decade. From one end of the country to the other, from the Great Lakes to the Gulf, municipalities are in the bond markets and it is a fact that in a list given below about $3,000,000 is to be spent for the purchase of clay products.

Aggressive sewer pipe manufacturers, who are continually reaching out for new trade, are always interested in the street and sewer improvement bond markets.

There is herewith appended a list of expenditures involving the outlay of a large amount of money, and in each instance clay products are wanted in one form or another. It follows:

Baltimore, Md.—$10,000,000 sewer bonds and $5,000 paving bonds.
Bridgeton, N. J.—City will issue from $70,000 to $100,000 water works bonds.
Caldwell, Tex.—Will issue $5,000 water extension bonds.
Deland, Ill.—Will issue bonds for an improved water system.
East Liverpool, O.—Will vote March 27 on issuing $175,000 water works and extension bonds.
Omaha, Neb.—Receiving bids on sale of $100,000 sewer improvement bonds.
Muskogee, Okla.—Voted on issuing $650,000 water, sewer and garbage plant bonds.
Pittsfield, Mass.—Sold $89,000 sewer bonds and $500,000 water extension bonds.
Portsmouth, Va.—To sell $600,000 bonds for water improvements.
Lamont, Okla.—Extension of water system, selling $20,000 bonds.
Lewistown, Mont.—To issue $100,000 water works bonds.
Lubbock, Tex.—Sewer and water works extension bonds valued at $80,000 to be sold.
Luray, Va.—Recent election authorized selling $10,000 water works bonds.
Morehead City, N. C.—Selling $20,000 water works bonds.
Memphis, Tenn.—Taking bids on $100,000 water works bonds.
Mifflin Township, O. (School District)—Selling $20,000 bonds.
Madison, S. D.—To vote on issuing $65,000 sewer bonds.

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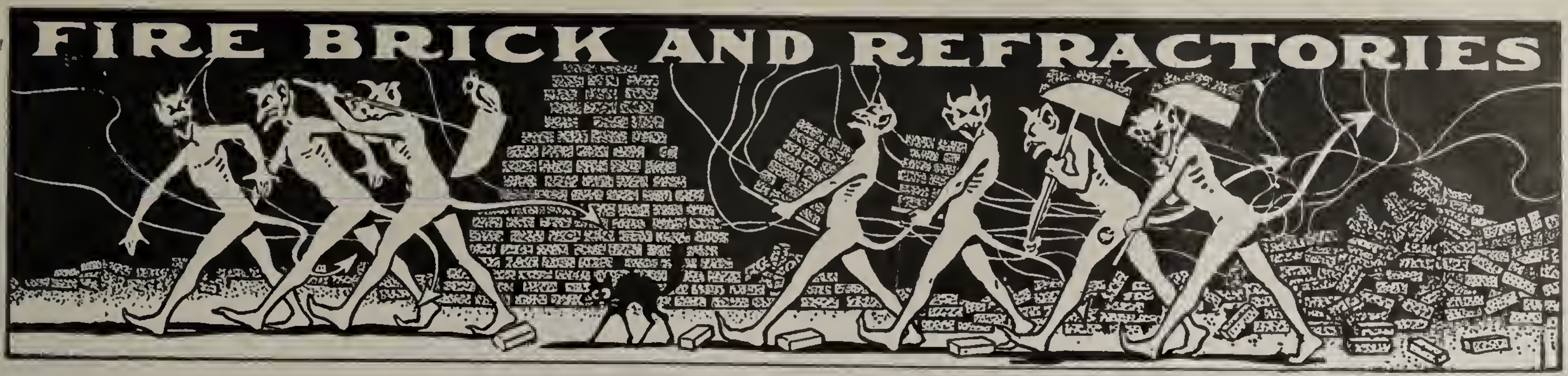
Elmery A. Reed, of Pomeroy, O., will lay in a supply of sewer pipe in connection with his hardware business, and wants catalogs and price lists of such clay products as would be required in the trade. Roofing materials will also be carried.



## THE MT. UNION (PA.) SILICA BRICK WORKS.

The manufacture of silica fire brick is one of the greatest industrial enterprises in Mount Union, Pa., where the Mount Union Silica Brick Co. have a large and modern brick plant. This plant is rapidly assuming large proportions, and the progress of this plant during the past 8 years has been due largely to the quality of the output as well as the methods which are utilized in its manufacture.

Mr. Dibert, one of the pioneers of brick-making in this community in company with W. H. Haws of Johnstown, went to Mount Union some years ago to investigate and select a site to locate a brick plant. They found large quantities of ganister rock located on Jacks Mountain, and very soon a brick works was established, known as the W. H. Haws Fire Brick Co. Those who were at the head of this concern at this time were the men who started the plant of the Mount Union Silica Brick Co., two years later. The W. H. Haws establishment was purchased by the Harbison-Walker people, and in 1901 the works of the Mount Union Silica Brick Co. were erected.

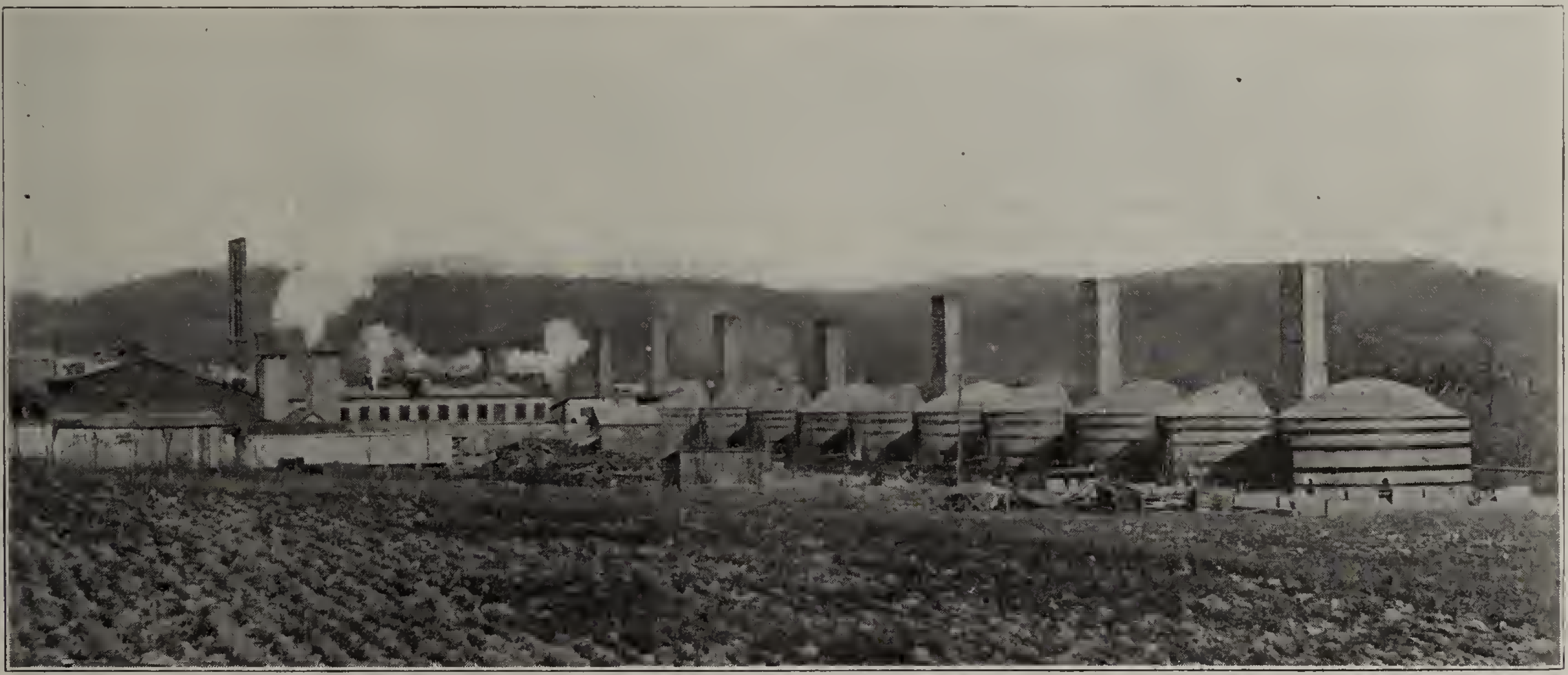
The plant at that time was small and the output was about 14,000 daily. At the present time this plant has 18 kilns and all of the modern improved type, both round and rectangular, 3 large pans which grind the crushed rock, 6 engines, 3 electric motors, 3 boilers, having a capacity of 350 H. P., collectively, an air compressor and in fact all the up-to-date machinery.

The plant shows ingenuity in arrangement, construction and manipulation. Of the engines just mentioned, there are 3 of 165 H. P. each, 2 of which are used to run the dynamos and the other to run pans, the other 3 engines are used to run the fans, two of them being 35 and the other 15 H. P. respectively; the 2 large crushers are run by an 85 H. P. electric motor; there is a 10 H. P. motor utilized also for running one of the fans and a ¼ H. P. motor used in the blacksmith shop.

The process of brick making at the Silica Works is unique. The rock is brought here from Jacks Mountain in the vicinity of Mapleton where it is transported by a locomotive and cars to the railroad and shipped to the Mount Union plant. The cars are run in over the siding to the works and the rock is dumped and passed through two crushers, one breaks it into pieces and the other crushes it still smaller, the latter process being used to take extra work off the pans. After having gone through the fine crusher, the rock is conveyed to a large bin, and then into a car, weighed and conveyed to a large bin and dropped into the grinding pans where it is ground and mixed with lime water.

When the material is sufficiently ground, the pans are emptied by a patent emptier which assures uniformity in the ground mixture, also doubling the capacity, giving them 8 pans rather than 4 per hour, an improvement over the general run of silica brick-making. After this, the material is poured into moulds, thence placed upon pallets, and then upon rack cars and at once pushed into the tunnels, where, after undergoing a process of drying at 200 deg. F., they are ready for the kilns. They are conveyed on the same cars into the kilns where they are set and burned. The brick are not touched from the time they leave the hands of the moulders until they are set in the kilns.

The daily capacity of the Silica Works will shortly be 80,000. To bring about this large output it has been necessary for the company to install some vast improvements. An addition is being built to the mill, additional siding is also being laid. A large storage shed is being erected and 4 new kilns have just recently been completed. Two hundred and fifty tons of rock and about 100 tons of coal are consumed daily. The pallets



View Showing the Well Planned Kiln Battery and Works of the Mt. Union (Pa.) Silica Brick Co.

are cleaned by means of compressed air and sand blast, run by an air compressor in the engine room. There are 305 rack cars having roller bearings and each hold 576 brick. There are over 30,000 pallets used to place the brick upon; after being taken from the moulds they are placed on the steel rack cars. The waste heat system of drying is used; exhaust steam is also used for drying and for heating water for the boilers, which effects a great saving of coal. A blower has been installed recently which removes the dust from the crushers.

Only the most skilled workmen are employed, which accounts for the high quality of the output. The company owns many acres of land containing vast beds of the ganister rock sufficient to last at least 100 years. The machine shop is especially equipped for making the many steel moulds required in the business, besides repair work of all kinds is done in the shops, effecting a great saving of time.

Everything at the Silica Brick Works is carefully and systematically laid out, so that there is no loss of time in the handling of the product. From 5 to 10 carloads of brick are shipped daily. Eight days are required to burn a kiln of brick and about the same time is required for the cooling. The additional buildings at the plant will be absolutely fireproof, and the equipment will be modern in every particular. Electric apparatus is applied wherever possible. The company's brick is known favorably throughout the country, and the high standard which they have set for this commodity is evidenced by the increased development of the plant and output.

The Mount Union Silica Brick Co. is one of the largest manufacturers of silica brick in the United States. The yearly capacity approximates 15,000,000, 150 employees being kept busy throughout the year.

### PROSPEROUS FIRE BRICK CO.

The Savage Mountain Fire Brick Co. of Frostburg, Md., reports a prosperous year and elected the following officers for the year 1911: Charles C. Gorsuch, president; John A. Caldwell, vice-president and treasurer; H. C. Gorsuch, secretary.

### EQUIPMENT FOR FIRE CLAY PLANT.

The West Virginia Fire Clay Company has doubled the capacity of its plant at New Cumberland, W. Va., by the erection of a 60x120-ft. brick addition, a battery of boilers of 300 H. P. capacity, a 350 H. P. Hamilton Corliss engine and the installation of additional equipment in the operating departments.

### INSTALLING FIREPROOFING PLANT.

The Jeffreys Fireproofing Company, which will locate in a part of the Crystal Glass Company's old plant at Martins Ferry, O., has its machinery on the ground. It will be operating in one month.

### ADDS NEW BUILDING.

The construction of the large addition to the main building of the Harbison-Walker Refractories Co. at Ensley, Ala., has commenced; the new building will be 150x150 feet and will be constructed of reinforced concrete.

### TO ESTABLISH NEW PLANT.

The Salina (Pa.) Fire Brick Co. has been organized with a capital stock of $175,000. A plant will be constructed in Salina within a few months, where the company has very valuable holdings. The incorporators are M. P. Shoemaker, John M. Yockey, E. S. Naly.

### GROWING DEMAND FOR FIRE BRICK.

The demand for fire brick on the Pacific Coast continues to show a steady growth, partly on account of the production of oil in California, and partly because of expansion in other industries requiring a heat-resisting material. A new steel casting plant which started the first of the year at Black Diamond, Cal., is a large consumer of this material, and quite a quantity willl be required for an open-hearth plant, in South San Francisco, which will start up in April. The Western Steel Corporation, whose plant is on the Puget Sound, promises to be one of the largest consumers on the Coast in future. Foreign brick is very generally used in local foundry practice, but in oil plants, and the many industries where oil is used, local material has the preference, as the manufacturers here have made a special study of the peculiar and very exacting requirements of brick for oil burning furnaces.

The Ione Fire Brick Co., of San Francisco, has had a highly successful year (disposing of its last summer's output much earlier than was expected. It has been impossible to make any brick for over a month past, owing to the wet weather, and the kilns will have nothing left to work on after the first of March. The fire brick, put out last year, was a great improvement over former runs. and plans are now being perfected by which it will be still further improved, and the output considerably increased. The summer run, with favorable spring weather. will start early in April, and burning will be resumed as soon as possible.

### A FLOURISHING PLANT.

The Union Mining Co., which operates a fire brick works, with a yearly capacity of 18,000,000, at Mt. Savage, Md., have kept their plant busy during the entire year. Three hundred men are employed; 50,000 tons of clay and 12,000 tons of coal with 60 barrels of lubricating oil represent a small part of the outlay. The kiln battery is composed of 14 square kilns. A mixing apparatus has been installed during the past year at both wet pans, giving an accurate mix at all times, making the brick uniform. A waste heat drying apparatus has also recently been installed. The company have a good demand for their "Mt. Savage" produce.

### TO BUY PLANT.

The report comes from Lisbon, O., that a party of Steubenville oil men will purchase the keystone fire brick plant, located a short distance from that place, and will convert it into an oil refinery, using the kilns to burn limestone for fertilizer.

The Mississippi Glass Co., Vandalia, Mo., is completing arrangements for the erection of its new fire brick plant.

### BUSINESS GOOD IN ARKANSAS.

Mr. G. Brewster, secretary-treasurer of the Pine Bluff (Ark.) Brick Co., in a recent communication, informed us: "The outlook for the brick business for the year 1911 is more favorable, for a large demand, than we have seen at this time of the season within the past 10 years. Very few of the yards have a surplus on hand, but instead are selling them as fast as they can be manufactured. We have sold 10,000,000 brick this past season and every one of them were sold before made, and we are doing no more than our competitors are. The weather is extremely fine for the manufacture of our product, as we have had no rain of consequence since October last."

# POTTERY NEWS

East Liverpool, O., March 15.—"What's the use of worrying," remarked one of the largest pottery manufacturers in the west to the representative of Brick and Clay Record a few days ago. "Did you ever know a time when the situation was free from worry? Did you ever know a time when the outlook was absolutely clear? If it is not one thing then it is another. The thing for every man to do is to tackle the thing which is before him, and then dispose of it in the best possible manner."

This expresses the condition of the domestic pottery trade at present. Many manufacturers have been going around with long faces and when business gets a little slack the first one hears is that the price on a certain item has been cut. Whenever the pottery manufacturers sell their product on the same basis that the United States Steel Corporation does, then, and not until then will the long faces disappear. Some plants, it is true, are operating to their capacity, while others could take care of more business without crowding themselves. On the whole, however, things have been a whole lot worse at other times. That bright skies are ahead there is no possible doubt.

K. Mills Bennett, a mold maker at the Standard Pottery Co., of this city has contemplated taking up the matter with the Board of Trade at Fairmont, W. Va., with reference to the erection of a new pottery there. Fuel gas is selling in Fairmont at 10 cts. per thousand cu. ft.

A Rockingham and Yellow ware plant may also be built in this city ere long. It is said that options on ground for this purpose have already been taken.

At the Warwick China Co., in Wheeling, W. Va., considerable new machinery is being installed, which is to be used in the production of a china body. This machinery consists of special footed dish machines and additional jiggers, all of which were made by a Trenton, N. J., firm.

If the plans of William Wade, who recently came to Los Angeles from London, England, are concluded, Los Angeles will soon be exporting vast cargoes of china clay to Northern ports. Mr. Wade recently secured control of a large deposit of the clay near Los Angeles. He was there to look into the price of charters for shipping the clay north. The clay is extensively used in tile works.

J. T. Smith has been re-elected president of the Smith-Phillips China Co., of East Liverpool. He has also been given the title of general manager, but in this connection he has two assistants—Edward A. Crawford, formerly a traveling salesman, is in charge of the decorating department, and Charles Bowman, in charge of the clay shops. Will H. Phillips is secretary-treasurer and Roy Colcolugh is his assistant.

The Standard Pottery Co., of East Liverpool, is making a general improvement in its production. A new dinner shape is to be placed on the market and a new body is being made. The firm is operating two plants in East Liverpool and is also financially interested in the Salem China Co., at Salem, O. William Cook, formerly general superintendent of the Edwin M. Knowles China Co. and more recently serving in a similar capacity with the Knowles, Taylor & Knowles Pottery Co., is now general manager of the two plants of the Standard in East Liverpool.

Trenton, N. J., March 8.—The ceramic industry in the East is in a mighty prosperous condition. The tile manufacturers are very busy, while the electric porcelain and sanitary pottery plants are working full time. The general ware potteries in this district are also working to their capacity. The outlook for a good spring trade was never brighter.

All pottery manufacturers in this district are exceedingly interested in the co-operating efforts of the Maddock Pottery Co., and the Crossley Manufacturing Co., in experimenting with oil firing for kiln fuel. If future tests prove as important as the first few, the system promises to revolutionize the pottery business. In the substitution of oil for coal, which has been disastrously attempted in the past, both in this city and in the western clay centers, the potter does away with the presence of coal dust, sulphur, ashes and iron pyrites in his kiln and at the same time obtains a uniform heat.

The quarterly dividend of the Trenton Potteries Co. of 1 per cent was paid stockholders January 25. This is one of the best paying potteries stocks on the market today.

The Ionia Manufacturing Co. has been formed here to conduct a general pottery business. It has a capital stock of $25,000 and Owen J. O'Donnell is at the head of the company.

At the cost of $25,000 the Trenton Potteries Co. has contracted for the erection of a new pottery building, four stories and basement. This addition will be at the Equitable plant.

This company recently entertained 40 heads of departments when President John A. Campbell acted as host. A feature of the dinner was the awarding of a special prize to Charles Young, superintendent of the Empire Pottery, in a contest which was inaugurated six months ago among the vitreous china ware potteries. The prize was to be awarded to the superintendent having the least loss recorded in producing ware for the half year. Mr. Young is the youngest superintendent in appointment of the concern, and his achievement over the older and more experienced heads was highly complimented.

Report has it that the Bellmark Pottery has been bought by State Road Commissioner Frederick Gilkyson and John and William Maddock, of John Maddock & Sons Co. The former has been in charge of the plant since the famous sanitary pottery suit in this city some months ago.

Two firemen were injured while fighting a fire at the plant of the William Morris pottery plant. The pottery will be improved.

For the purpose of manufacturing sanitary ware, the Lambertville Pottery Co., of Lambertville, N. J., has been incorporated with a capital stock of $50,000 by George Pauck. Of the capital stock $21,250 has been paid in.

The Monument Pottery Co. recently observed its fifteenth anniversary, which was in the form of a dinner, to which all employes were invited.

M. P. Neilsen, a Seattle (Wash.) sculptor, is interesting himself in valuable clay deposits there, intending to utilize the material for molds. He is planning to equip a plant for glazing pottery.

# SAND LIME DEPARTMENT

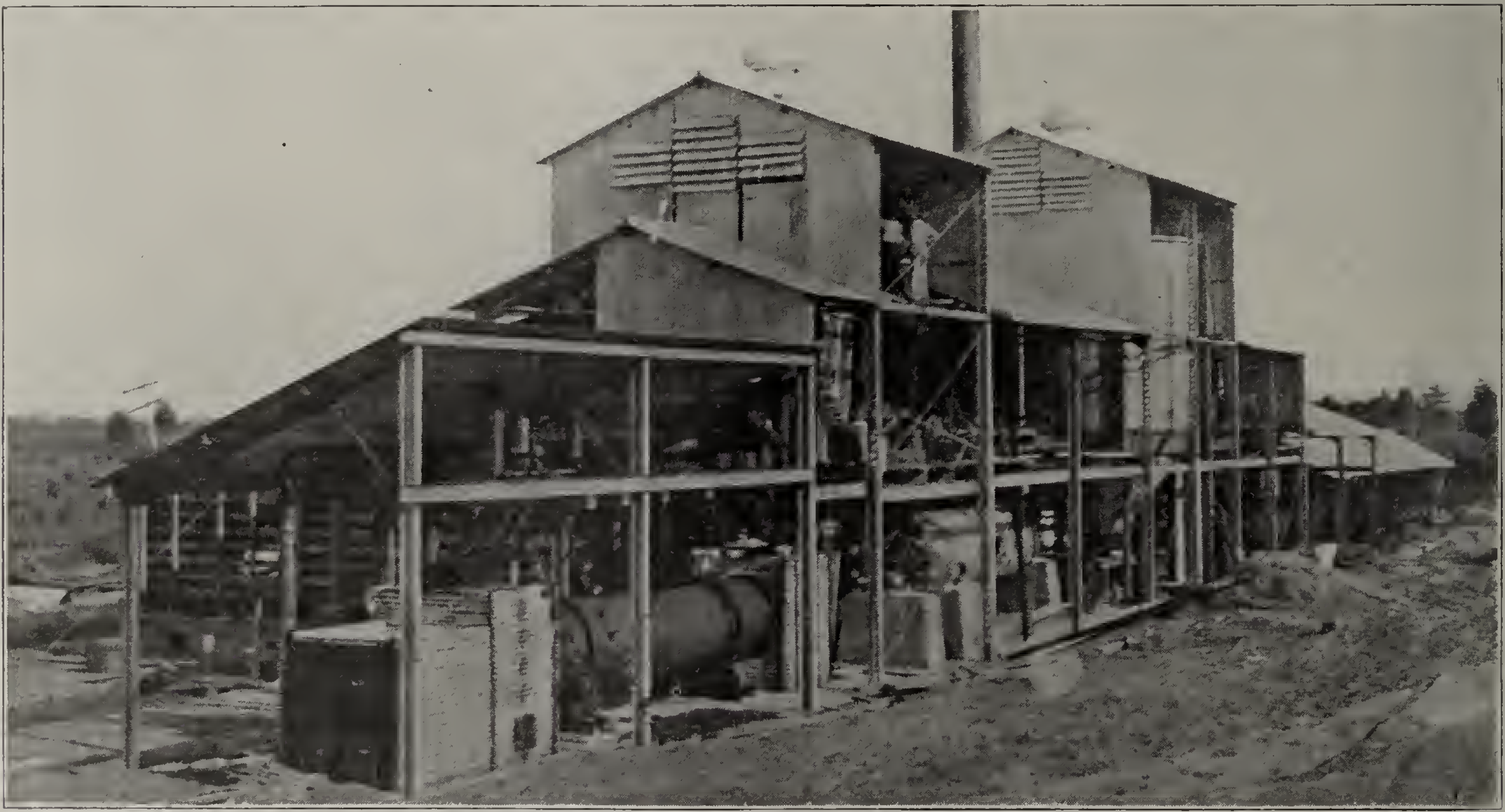
## THE TIFT SILICA BRICK & STONE CO.

Another new industry has been established in the thriving city of Albany, Ga.—the manufacture of silica building brick and stone. It is the latest enterprise of one of the wealthiest and best known lumber men in the South,—Captain H. H. Tift,—and may well be considered the initial step in the policy of progressive lumber interests to provide by the development of the new industry, which is destined soon to become one of the greatest in the building material line, against the not far distant time when the ever decreasing supply of lumber will be exhausted.

The plant of the Tift Silica Brick & Stone Co. is located just east of Albany, on the property known as the Tift Sand Hills, near the Thomasville Branch of the Atlantic Coast Line Railroad. These hills cover an area of more than 400 acres, ranging in depth from 20 to 60 ft. and consist of a very high-grade silica sand, free from impurities, which makes an ideal material for the manufacture of brick and stone.

The factory is the standard single unit type, designed and completely equipped, with the exception of the power plant, by the International Sand-Lime Brick and Machinery Co., of New York City, and operated under their well known patented Division Method. It has a capacity of 20,000 brick and 200 cu. ft. of silica stone—lintels, sills, cornice, etc.—per day of ten hours, with sufficient power, grinding and mixing machinery for double the present capacity. The main building is 75 ft. in length by 22 ft. in width, one, two and three stories in height, of steel frame construction with corrugated iron roof and the floor of concrete,—each machine also resting on a separate concrete foundation. The side walls are of brick from the first run of the factory. The substantial fireproof construction of the building and the up-to-date equipment make this easily one of the finest silica brick plants in the country.

One cut shows the factory before the same was enclosed, giving a good idea of the steel frame, as also the machinery, starting with the drier on the left-hand side, the tube mill in the center, and the large steel silo on the right-hand side of the picture. The factory produced brick while in this condition and these brick were used to erect walls, filling out the panels in the steel frame.



Factory of Tift Silica Brick & Stone Co. before it was enclosed.

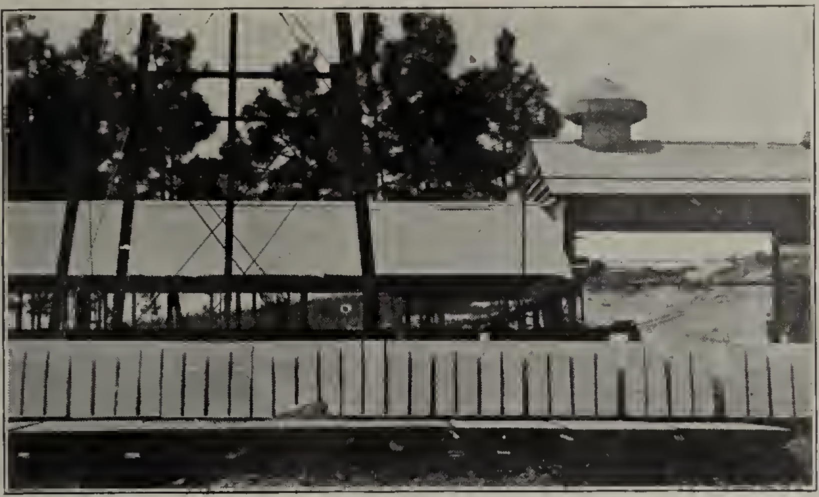
Another cut shows the interior of the factory with a four-mold press in operation and the automatic stone tamping outfit in the foreground.

The other cut shows a train load of brick fresh from the hardening cylinder, which appears in the background, and through the opening in the shed the sand deposit, itself, is visible.

The product of the Albany factory has found great favor and is being readily disposed of for building operations throughout Georgia, and has been pronounced by leading architects and contractors as among the finest products they have ever seen manufactured from sand and lime

### PLANTS COMBINED.

The Philadelphia Sand-Lime Brick Co., Philadelphia, Pa., has recently purchased the plants of The Sand Lime Brick Co., Taney & Pine Sts., Philadelphia, and the Camden Granite Brick Company of Haddonfield, N. J., and has combined them at the latter point. They expect to manufacture 35,000 brick per day and to enter the market for all grades, heretofore having been confined to face brick only. The plant will be under the same active management as at Taney & Pine Sts., Philadelphia.



Train Load of Finished Brick from Tift Silica Brick Co.

### MICHIGAN SAND-LIME BRICK.

The United States Geological Survey, in co-operation with the bureau of the census, has compiled statistics of the production of sand-lime brick in Michigan, in 1909, as follows:

| County | Quantity (Thousands). | Value. |
|---|---|---|
| Genesee | 4,181 | $28,039 |
| Houghton | 3,241 | 29,013 |
| Huron | 4,247 | 25,575 |
| Jackson | 3,300 | 15,000 |
| Kent | 3,839 | 18,067 |
| Macomb | 40 | 320 |
| Manistee | 1,685 | 11,046 |
| Menominee | 976 | 5,466 |
| Saginaw | 8,288 | 44,589 |
| Wayne | 5,818 | 41,111 |

### WILL MAKE SAND-LIME BRICK.

The Pennsylvania Pressed Brick Company, at Altoona, Pa., is the successor to the Altoona Pressed Brick Company, which has removed to its present location at Grazierville, Pa. The new plant makes both dry-pressed red shale brick and sand-lime brick. The property contains excellent shale and sand in large quantities. The shale end of the proposition is at present being largely developed. The plant has been running steadily since the first of September, 1910, when it was first put in operation. They are not yet working their full kiln capacity, but will have same installed by spring. The sand-lime brick end of the proposition will be developed in the near future.

### SAND LIME BRICK IN CONNECTICUT.

Sand lime brick of high quality are soon to be produced in Farmington, Conn., by a Hartford company which is installing the necessary machinery at a plant on the New Haven & Northampton line. New England has been slow to take hold of this method and is just awaking to the possibilities in this new industry.

### SUBSTANTIAL AND RELIABLE.

"Substantial and reliable" is a term which may well be applied to anything put out by the Marion Steam Shovel Co., Marion, Ohio. This element is noticeable in the handsome catalog which has recently been distributed. Had they been getting out a family bible it could not have been more elegantly gotten up. The paper, engravings and printing are of the highest type and the binding is of soft and finest seal leather.

The thoughtful person cannot but be impressed with the importance of the mechanical achievements that have marked the manufacture of the Marion steam shovels and excavating machinery, during the last quarter of a century. Throughout these years the company has endeavored to construct machines of superior efficiency, design and quality, with the result that they have won the confidence and endorsement of engineers and contractors throughout the world. Their output represents strength and efficiency, minimum cost of operation and high grade workmanship.

Among the new models, No. 35 seems to be especially desirable for work in the brick yard, where it is desired to deposit the excavated material into wagons or cars at either side or in the rear of the shovel.

The time has passed when the clay manufacturers can keep up with the pressure of competition, while depending on an old hand system of digging clay. With the improved steam shovels great economy is effected in time and labor, and no clay manufacturing company should be without one of these steam shovels. Those interested should write to the company at Marion, Ohio, for one of these catalogs.

### MAKING SAND-LIME BRICK.

The first carload of brick from the new plant of the Oklahoma Granite Brick Company, located at Oklahoma City, has been shipped to Oklahoma City, where the brick had been contracted for. The plant has only recently been put up, its construction entailing a cost of $60,000.

Four-mold Press and Automatic Tamping Outfit, Tift Brick Co.

### NEW SAND-LIME BRICK PLANT STARTED.

The Massachusetts Sand-Lime Brick Company, of Oxford, Mass., will soon have their plant in that city in full operation, turning out sand-lime brick. The plant will have a capacity of 20,000 brick per day on the single unit system. The plant is arranged so that this capacity can be doubled without overworking the machines. The plant is equipped with modern power furnishing machinery, two 250 H. P. boilers and one 150 H. P. engine having been installed.

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### OUR EASTERN LETTER.

New York, Feb. 28.—February closed strong in the Eastern brick market, although its beginnings were decidedly weak. Quotations on the open market at close of business today ranged from $5.50 to $5.62½ a thousand, dock. Covered cargoes are going out with practically no advance over open market figures although some agents were asking $5.75. No sales were reported at this figure, however. The strengthening developed from a $5.00 to $5.25 basis, but it is not expected to be permanent. This is because the Hudson river will be reopened to navigation within another fortnight and this will be followed immediately by a terrific influx of brick.

There are only 10,000,000 Hudson river common brick in the market at present made up of 29 covered barges and 8 in the open market. Practically all February dealers rode brick from their stacks to nearby operations, buying in the open market only for distant requirements where the cost of hauling would eat the already narrow margin left to speculators who bought heavily early in the winter in expectations of a rising market at the winter-end. In many cases dealers are selling brick from their stores at not more than a shilling over cost of stacking. Under ordinary conditions a shortage of available supply would boost prices at least to $6. The prospect of a shutting off of shipments from kiln to market would also have a bull effect upon the market, but an absolute lack of demand has made even the present stiffening artificial and temporary.

Current prices for this time of the year (the last week in February) are lower than they have been in six years. A comparison is interesting:

| | Dock, N. Y. In M lots | | |
|---|---|---|---|
| 1905 | $8.50 | to | $ 9.00 |
| 1906 | 11.00 | to | 11.25 |
| 1907 | 5.50 | to | 6.00 |
| 1908 | 5.25 | to | 5.75 |
| 1909 | 6.87½ | to | 7.00 |
| 1910 | 7.00 | to | 7.50 |
| 1911 | 5.50 | to | 5.62½ |

The above figures are for Hudson river brick only. The quotations on Raritan river common brick show a corresponding fluctuation and clay products from other sections are showing the same inverse scale. The transactions on the market during the last four weeks show where the trouble is, the demand falling away to practically not a single transaction. Comparisons are made from January 21 to February 20 with estimated sales for the week ending February 25.

Left over, Jan. 20, 4.

| | Arrivals | Sales | Covered. |
|---|---|---|---|
| Monday | 13 | 2 | 0 |
| Tuesday | 0 | 0 | 0 |
| Wednesday | 0 | 3 | 0 |
| Thursday | 0 | 1 | 0 |
| Friday | 0 | 0 | 0 |
| Saturday | 0 | 0 | 0 |
| Total | 13 | 6 | 0 |

Left over Jan. 25, 11

Prices asked, $5.00 to $5.50

Quotations on covered cargoes, $5.50 to $5.75

Left over, Jan. 30, 11.

| | | | |
|---|---|---|---|
| Monday | 6 | 4 | 0 |
| Tuesday | 0 | 1 | 0 |
| Wednesday | 0 | 2 | 0 |
| Thursday | 0 | 1 | 0 |
| Friday | 0 | 0 | 0 |
| Saturday | 0 | 1 | 0 |
| Total | 6 | 9 | 0 |

Left over, Feb. 4, 8.

Prices asked, $5.25 to $5.50

Quotations on covered cargoes $5.50.

Left over Feb. 6, 8.

| | | | |
|---|---|---|---|
| Monday | 0 | 0 | 0 |
| Tuesday | 0 | 0 | 0 |
| Wednesday | 0 | 1 | 0 |
| Thursday | 0 | 2 | 0 |
| Friday | 0 | 0 | 0 |
| Saturday | 0 | 0 | 0 |
| Total | 0 | 3 | 0 |

Leftover Feb. 11, 5.

Prices asked, $5.50

Quotations on covered cargoes, $5.50.

Left Over Feb. 13, 5.

| | | | |
|---|---|---|---|
| Monday | 10 | 2 | 0 |
| Tuesday | 0 | 0 | 0 |
| Wednesday | 0 | 3 | 0 |
| Thursday | 0 | 2 | 0 |
| Friday | 0 | 0 | 0 |
| Saturday | 0 | 0 | 0 |
| Total | 10 | 7 | 0 |

Left over, Feb. 20, 8.

Prices asked $5.50 to $5.62½

Quotations on covered cargoes, $5.75.

Reports for the week ending February 25, were not available at the time of writing, but no arrivals had been reported up to Friday afternoon at 2 o'clock and no sales were recorded for the entire week. This is said to be the first time in the history of the brick industry that not one sale was recorded in a period of 5 days in February.

#### Basic Conditions are Not Wrong.

All this is not the fault of basic conditions. Prior to the receipt of news that the Interstate Commerce Commission had handed down an adverse decision upon the railroad freight rate cases, building conditions were shaping themselves for a healthy building season. In the city plans filed for 1911 up to January 18, showed a value of $352,797, over the total for last year. The following comparisons are enlightening:

| | Values. | | No. Building Projects. | |
|---|---|---|---|---|
| | 1911 | 1910 | 1911 | 1910 |
| Brooklyn | $ 2,722,748 | $ 2,962,510 | 303 | 642 |
| Bronxton | 1,032,675 | 4,159,655 | 78 | 196 |
| Manhattan | 15,170,650 | 11,989,500 | 72 | 87 |
| Queens | 2,435,191 | 1,446,802 | 500 | 329 |
| | 20,911,264 | 20,558,467 | 953 | 1,254 |

The number of new buildings projected in the greater city, excluding Richmond borough, thus far in 1911 is 301 less than the totals for the same period last year.

#### Later News.

March 6.—At close of business today there were only 700,000 common brick in the New York open market, represented by two barge loads remaining unsold at the West 52nd St. docks. There were only 17 covered barges, averaging 350,000 brick each, making a total held under contract for future delivery 5,950,000. No more sales are being made from the covered supplies, except by companies like the John B. Rose Co. or the Empire Brick & Supply Co. and Washburn Bros. to whom the majority of barges now in the harbor were consigned.

But in spite of the meagre supply prices have not advanced, the actual selling price today being $5.50 to 5.62½ per M, wholesale alongside dock. The undertone brightened considerably the latter end of last week, however, when it was announced that the John B. Rose Co. would send a chartered Cornell tug up the Hudson behind the first Albany day line boat, scheduled to make its ice-breaking initial-season voyage on Tuesday, March 7. This was expected to bring in a larger supply so as to put the agents here at their ease.

With navigation to the source of supply closed, agents have been somewhat hesitant about taking contracts. Heretofore, there has been no cramping of the market because building operations have been light and dealers have been riding from stacks. Now that their stacks are almost depleted the dealers are turning to the market and the agents are able to quote only upon client's instructions; not what they know the future market is likely to be. As most of the manufacturers, despite their large reserve supply are anxious to get their prices above the present losing figures, they are instructing their agents to hold for prices somewhat higher than the present market level for late March, April and May deliveries. Dealers and contractors consider $6.50 to $7.00 high and in consequence there has been a falling off in open market purchases.

While the above figures are top, other manufacturers are holding for lower prices, some being as modest as $6.25 to $6.50, but sales have not been consummated because supplies could not be obtained.

It might be considered dangerous to permit the market to get so low. Dealers might force a crisis by buying the entire supply. But conditions do not, at present, warrant a dealer in taking a chance. The stacks he set aside early in the winter came near representing a loss to him, his margin in many cases representing only a shilling. Again, he believes that the present low supply is merely a subterfuge on the part of manufacturers to encourage a corner of the market while navigation is apparently closed. He thinks that if the brick companies wanted to open the river they could do so. He, of course, has no way of knowing that when the Cornell Tug Hercules recently made a dash for Haverstraw that it encountered ice two and even three feet thick in places and, got no further than Storm King.

### Other Low Tide Precedents.

There have been other instances when the supply of brick was limited, in summer as well as in winter. On July 28th last, there were only three barges left in the harbor and on July 30, of the same year, there was only one barge for sale. On Feb. 28 to March 1, last year, there were six cargoes in the city. As these were covered cargoes there was not a single cargo for sale in the wholesale market. Even under those conditions, with navigation closed, too, prices only went to $7.00 per M.

### Raritan River Common Brick More Active.

The Raritan river situation is much brighter. Prices are ranging from $5.50 to $6. In Newark dealers are getting $6.75 a thousand for this brick and about the same figure for the small quantity of Hudson river brick that finds its way by lighter up the Passaic. Hackensack brick is bringing $5.50 to local trade which also includes prices to agents. Connecticut brick is quoted for local business at $5.25 to $5.75 while Trenton brick brings as high as $6.00, but the usual cargo goes out at $5.62½ a thousand. The Earnest T. Hand Brick Co. in Plainfield is getting $6.50 a thousand. This yard covers the territory from Elizabeth to Bound Brook. New Brunswick is supplied from the South River brick yards direct where brick is sold on the yard at $5.50.

### Spring Preparations Among Jersey Brick Yards.

Brick's correspondent canvassed the entire New Jersey field this week. New Jersey brick manufacturers begin operations earlier than the larger plants up the Hudson. For that reason preparations are actively under way there for 1911 resumption.

In the Hackensack district manufacturers plan to start making brick on or about the middle of April. In South river and Sayreville many of the open yards will be operating by the first of April. In Trenton some of the plants there expect to begin operations by the 20th of March, but most of these have special facilities for digging during chilly weather. In Plainfield, representing the upper central New Jersey territory, the yards are undecided regarding the date for resuming manufacturing. They will probably begin operations about the middle of April. These companies were interviewed:

SAYRE & FISHER CO.—"We have not started to resume operations on our open yards. We expect, however, to make the usual quota, as we can see a very bright year ahead of us. Central New Jersey, like New Brunswick, Perth Amboy and all Staten Island sound centers are going to have their greatest developments this year. It is the natural consequence of the wonderful real estate exploitation so conspicuous last year."

TRENTON POTTERIES CO.—"We make a specialty here of a very high grade of building pottery and lavatory accessories. The right to manufacture and sell the Hinsdale solid porcelain stall has recently been acquired by us. This will necessitate a very great change in our equipment so that we can handle this device in the volume required by the entire East. This is one of the principal extensions we will make this year."

PHILIP MEHRHOFF, Hackensack.—"We are getting a flat yard price of $5.50 for our brick to local trade. We will probably operate to our usual 5,000,000 capacity this year but there are others who will probably reduce their output. The outlook for 1911 looks particularly bright to us. There is going to be a great deal of construction work in Paterson. We will make no general improvements to our plant save, that which is usual in replacing depreciation."

THE MEHRHOFF BRICK CO. Little Ferry, N. J.—"The year 1911 promises to be moderate. We do not expect to operate our entire 30,000,000 capacity this year. It probably will be run at about 25,000,000."

The total capacity for the Hackensack district for 1911 as shown by plans so far made by manufacturers totals 73,000,000 brick divided as follows:

| | |
|---|---|
| Mehrhoff Brick Co. | 25,000,000 |
| Selter Bros. | 10,000,000 |
| M. Mehrhoff Brick Co. | 10,000,000 |
| G. W. Givers | 7,000,000 |
| Gardner Bros. | 7,000,000 |
| Hackensack Brick Co. | 5,000,000 |
| Philip Mehrhoff | 5,000,000 |
| Edward Schmultz | 4,300,000 |
| Total | 73,000,000 |

Plainfield brick yards are already getting ready for business, as these interviews show:

ERNEST T. HAND, Mr. Dodd, superintendent.—"We expect a moderate year. Our plant is more or less upset now as we are planning to rebuild the sheds destroyed by fire last fall. We expect to get our machines ready for making brick on or about the 1st of April. Our capacity for 1911 will be run to the full output of 3,250,000 to 3,500,000 until our sheds are full and then close down. We cover the district from Elizabeth to Bound Brook in which district there promises to be a large quantity of brick sold this year."

ALBERT RAJOTTE, Plainfield.—This company has a capacity of about 3,500,000 brick and it expects to begin to manufacture about the middle of April. There has been a good call for winter brick.

REVERE FIRE BRICK CO.—Harry H. Picking of 28 Mulford ave., East Orange, N. J., is one of the incorporators of the Revere Fire Brick Co., a certificate for which was recently issued by the New Jersey Secretary of State. It is capitalized for $50,000. Other incorporators are Carles C. Goyer and Frank Ruggles.

THE NATIONAL FIREPROOFING CO.—"Our plant at Keasbey, N. J., will be operated to its fullest capacity this year to take care of prospective business. We expect a banner year. We are already overhauling machinery and may add more machines for turning out partition blocks and fireproofing tile, to meet the increased demand from the suburbs."

ATLANTIC TERRA COTTA CO.—"We have had more business during the last two weeks in February than conditions at the first of the week indicated for the heart of the building season. We expect to run our Perth Amboy plant to its fullest capacity. There is a very large amount of big construction work which we are taking care of. One of our most conspicuous operations was that of the Church of St. John, Kingsbridge ave. and 230th st., this city."

This church has attracted widespread interest and is a conspicuous example of the artistic possibilities of brick and terra cotta. Architects have pointed it out as one of the most artistic edifices in the city.

As far as can be learned by inquiry among manufacturers' representatives in this city, there is as yet no movement being made to reopen plants up the river. The situation in New York does not require haste and for that reason the producers are sounding the situation thoroughly before acting.

A review of the last thirty days in the Eastern brick market shows radical fluctuation in tone. Transactions follow:

Left over, Feb. 18, 8.

| | Arrivals | Sales | Covered |
|---|---|---|---|
| Monday | 0 | 1 | 0 |
| Tuesday | 0 | 0 | 0 |
| Wednesday | 0 | 0 | 0 |
| Thursday | 0 | 0 | 0 |
| Friday | 0 | 0 | 0 |
| Saturday | 0 | 3 | 0 |
| | 0 | 4 | 0 |

Left over, Monday, Feb. 27, 4.

Current prices, $5.50 to $5.62½.

Quotations on covered cargoes, $5.50 to $5.62½.

Left over, Feb. 1, 5.

| | | | |
|---|---|---|---|
| Monday | 10 | 2 | 0 |
| Tuesday | 0 | 0 | 0 |
| Wednesday | 0 | 3 | 0 |
| Thursday | 0 | 2 | 0 |
| Friday | 0 | 0 | 0 |
| Saturday | 0 | 0 | 0 |
| | 10 | 7 | 0 |

Left over, Feb. 18, 8.

Prices. $5.50 to $5.62½.

Quotations on covered cargoes, $5.50 to $5.75.

## THE PITTSBURG DISTRICT.

Pittsburg, Pa., March 12.—Throughout the Pittsburg district the demand for brick homes is growing, it is said, and as a result architects and builders are anticipating a greater call for brick for building purposes this season than for many years.

Hollow tile is also growing in popular favor in the Western Pennsylvania district for home construction, and the manufacturers of these lines are greatly interested in the rapid advances being made by the fireproof building fabric.

Many brick manufacturers throughout the Keystone state are increasing their capacity, either through the construction of additional kilns or by installing additional machinery or increasing the capacity of the machinery already in place.

At Ridgway, Pa., the Ridgway Brick Co. has razed two of its kilns and is erecting larger ones in their place. The construction will be completed within a month. it is said.

The superintendent of prisons, the office of which is with the Department of Justice, Washington, D. C., is receiving bids until March 18th for hollow tiling to be delivered at the United States penitentiary at Atlanta, Ga. The product is to be used in the construction of a new administration and hospital buildings. R. V. Landow is in charge.

At Fallston, Pa., James H. Welch has started operations at the new plant of the Welch Clay Products Co. A high grade of fire brick is being manufactured.

C. B. Lawton, general manager of the National Glass Brick Co., at Connellsville, Pa., has set the limit of 6,000,000 brick per year for this plant, and with that end in view the capacity is being increased from 4,000 to 20,000 brick per day. Improvements now under way are to be completed within 60 days. The first branch office of this company has just been established at Philadelphia.

Because of the rush of business, the fourth kiln is being built at the plant of the Diamond City Brick Co., Wilkesbarre, Pa.

Directors have been elected by the New Washington Brick Co., Alexandria, Va., as follows: Bates Wareen, Edward C. Gummel, T. L. Holbrook, William F. Mattingly, Enoch L. White, Nathaniel Wilson, William A. Richards, James B. Lambie and William T. Galliher.

Machinery that was used in the plant of the Mt. Holly Brick & Clay Co., at Carlisle, Pa., has been shipped to Harrisburg, and the former plant is being razed.

As soon as weather is favorable, work building a new brick plant at Elwood City, Pa., will start. Local capital is interested to the extent of $100,000.

Quotations of brick in the New York market as received by dealers and manufacturers here are as follows:

Cargo lots, delivered, cars, New York.

| | |
|---|---|
| Front, buffs, No. 1 | 28.00@30.00 |
| Grays, shaded and speckled | 32.00@..... |
| White, No. 1 | 32.00@..... |
| Hudson River, common | 5.25@ 5.50 |
| Light, hard | 4.00@ 4.25 |
| Pale | 3.00@ 3.25 |
| No. 1 fire, American | 25.00@..... |
| No. 2 fire, American | 20.00@..... |
| Scotch | 35.00@..... |

The Snowden firm (kiln builders) of Cumberland, Md., were given the contract for 14 round down-draft Snowden patent kilns to be built at the Freeport Brick Company's yards at Freeport, Pa., work to begin March 15.

The cost of building a State highway from Pittsburg to Philadelphia would be $7,678,000 for brick and $4,537,000 for macadam, according to County Commissioner I. K. Campbell, of this city. He bases his estimate on the cost of paving and macadamizing the road in Allegheny County. This figure does not take into account the expense of grading or building connecting links of the highway, although it is said there would not be a great amount of new work required.

When former Governor Stuart advanced the State highway project, the cost was commonly reported at $50,000,000, but this estimate was greatly excessive if Commissioner Campbell's figures are correct. Engineers have expressed the opinion that there should be nothing in the way of a cross-State highway being built under $10,000,000.

On account of the increase in business, L. L. Sterner, superintendent of the Bingen Brick Co., has ordered another large new boiler and stock for the company plant at Bingen.

At a meeting of the stockholders of the Kushequa Keramica Co., the plant and machinery was leased to E. K. Kane. This company was organized by Thos. E. Moulton about a year ago and a plant erected at Kushequa. All of the latest machinery was purchased and installed. After repeated attempts to manufacture tile amidst difficulties of various kinds the attempt was abandoned. The chief difficulty seemed to be in burning to keep the goods from warping. Mr. Kane made a proposition looking to the leasing of the plants, and his proposal was accepted.

Under the most favorable auspices, so far as a demand for its product is concerned and the availability of raw materials required in its manufacture, to say nothing of the ideal location as far as shipping facilities are concerned, a thriving new industry has been established one mile east of Newton Hamilton, Pa., by Macklin and Stevenson, manufacturers of shale building and paving brick.

The plant is complete, comprising the latest brick making machinery, augmented by an automatic brick cutting machine and a machine for re-pressing brick.

From the machine the brick are taken to the dryer, consisting of seven tunnels, each 75 ft. in length, and dried by means of the waste heat from the kilns supplemented by steam. The waste from the kilns is forced through the drying tunnels through brick ducts by a powerful exhaust fan. The kiln equipment consists of five round down-draft kilns, three of 80,000 capacity, one of 100,000 and one of 16,000 capacity.

The daily output at present is 15,000 but by the addition of another pan the machine capacity can be increased to 30,000 per day. Railroad sidings extend along one side of the kilns, making the shipment of finished products possible with little labor and expense.

The varieties of brick manufactured comprise red Devonshire, repress, select and common wire cut. Three-quarters of a million brick are now in the yards awaiting shipment. Offices are in McVeyton, Pa., the members being James Macklin and W. P. Stevenson.

Entress Brothers, brick manufacturers, Pittsburg, are increasing the capacity of the power plant at their works by the installation of two 150-horsepower return tubular boilers manufactured by the Erie City Iron Works, Erie, Pa.

## FROM THE PACIFIC COAST.

San Francisco, March 10.—The general situation in California shows considerable improvement, though it must be admitted that the brick business is not very active just at the moment. The outlook for building through the country is excellent, as the heavy rains of last month have been followed by several weeks of fine weather, and the crops throughout the state are in fine shape. The rains were heavy enough to put several of the brick plants temporarily out of commission, and builders are not yet placing many contracts, preferring to wait until good working weather can be relied on. Nevertheless, the amount of building recently undertaken here is considerably greater than at the same season last year, and a similar gain has been noted in several other Coast cities.

There has been general rejoicing all over the Coast since the final announcement that the Panama-Pacific Exposition in 1915 would be held in San Francisco. It is admitted that building in this city has gone so far beyond immediate needs that the resulting activity will be less than it would be under other conditions, but a large number of buildings will still be required to accommodate the expansion directly due to the Exposition, and some contracts have already been let that were held up pending a decision in the matter. So far no plans have been made for the Exposition buildings, but work will be started on them just as soon as a site can be selected. The prevalent idea is that as many as possible of these structures will be of a permanent nature, but, of course, it is too early to talk much about materials.

Common brick has not improved to any appreciable extent, though a little better feeling prevails, and prices are maintained with somewhat more firmness than last year. The local demand has increased very little so far, but there is a very fair business in prospect. Shipments in this direction from the numerous plants around the Bay and in the interior are about as large as ever, and it is not easy to avoid an undue accumulation at local yards.

Manufacturers of pressed brick and terra cotta are looking to the future rather than the present, though they are getting a fair volume of small business all the time. Plans are being drawn for a lot of country banks and large school houses, in which these materials are to be largely used. Little paving brick is being used anywhere around San Francisco, but local sewer work was resumed some three weeks ago, and the contractors are again in the market for large quantities of vitrified brick for sewer lining.

The demand for fire brick continues to show a steady growth, partly on account of the production of oil in California, and partly because of expansion in other industries requiring a heat-resisting material. A new steel casting plant which started the first of the year at Black Diamond, Cal., is a large consumer of this material, and quite a lot will be required for an open-hearth plant in South San Francisco, which will start up in April. The Western Steel Corporation, whose plant is on Puget Sound, promises to be one of the largest consumers on the Coast in future. Foreign brick is very generally used in local foundry practice, but in oil plants, and the many industries where oil fuel is used, local material has the preference, as the manufacturers here have made a special study of the peculiar and very exacting requirements of brick for oil burning furnaces.

The Ione Fire Brick Company has had a highly successful year, disposing of its last summer's output much earlier than was expected. It has been impossible to make any brick for over a month past, owing to the wet weather, and the kilns will have nothing left to work on after the first of March. The fire brick put out last year was a great improvement over former runs, and plans are now being perfected by which it will be still further improved, and the output considerably increased. The summer run, with favorable spring weather, will start early in April, and burning will be resumed as soon as possible.

Sewer pipe is just beginning to move, after a couple of months of dullness. Quite a number of construction contracts have already been let, but as few of the contractors have been able to start work no great amount of pipe has been sold. The work in San Francisco is to continue on about as large a scale as last year, while many miles of new sewers are to be laid in the territory recently annexed to the city of Oakland. This district, which a few years ago was open fields, is being opened up by the improved suburban service of the Southern Pacific, placing it within easy reach of the business districts of Oakland and San Francisco, and has already become so thickly settled that increased sewer service is necessary. Large inquiries for sewer pipe are also coming in now from towns all over the state.

Serrill Winsor, head of the old Winsor Pottery & Terra Cotta Works, in East Oakland, died Feb. 13, at the Merritt Hospital in that city, after an illness brought on by a complication of diseases, to which his advanced age rendered him liable. He was 80 years old, but up to the time of his last illness had remained in active charge of the works. He was born in Johnstown, R. I., and came to East Oakland in 1872, starting the pottery plant in the following year. He is survived by a widow, Mary B. Winsor, and a son, S. W. Winsor, of Sacramento, Cal.

John S. Smith, under whose direction the plant of the California Pressed Brick Company was constructed near Niles, Cal., died Feb. 6 at his home in San Leandro, after an illness of several months. He was well known as an expert on brick plant construction, having been in charge of several plants in various parts of the country. He came to California several years ago, when the California Pressed Brick project was started.

There is renewed activity in Lincoln, Cal., the site of the large clay products plant of Gladding, McBean & Co. This firm is putting in several improvements at its works, having started the construction of a small railroad from the plant to the clay beds, to replace the wagons formerly used. The pottery plant has been employing about 350 men of late. The most notable work done by this company recently is the polychrome terra cotta for the Phoebe Hearst building, which will be one of the most ornate in the city. Much of the material has already been delivered on this job, and some of it has been set.

A change has taken place in another brick project operating at Lincoln, Cal., and for the last two years known as the Pyrmont Brick Co. The property of this concern has been taken over by a new corporation, the Lincoln Clay Products Co., capitalized at $250,000. The principal stockholders are Scott Ennis, C. E. McLaughlin, E. S. Brown, G. K. Rider and M. J. Dillman, all of Sacramento, where the main office will be located. It is proposed to install some new machinery, and about 50 men are to be employed at the works. The output will consist of pressed brick and terra cotta. The Prymont Brick Company has supplied brick for several large buildings at Sacramento.

The Golden Gate Brick Company of this city recently completed deliveries of buff pressed brick for the seven-story Wilson building on Stockton street.

The Fresno Brick & Tile Company, of Fresno, Cal., is putting in a side track from the Southern Pacific line to the plant.

The Houze Brick Company, of Vallejo, Cal., which is putting in a lot of improvements at its plant during the dull season, proposes to bore for natural gas this spring. It is by no means certain that gas can be found in that vicinity, but there have been some indications of it, and as the company has been spending some $50 a day for fuel oil the experiment is considered worth trying.

The Vallejo Brick & Tile Co. has been delayed in several departments by the wet weather, but has been burning brick all the time, and is again shipping large quantities to San Francisco.

A large recreation pier is being built at Ocean Park, Cal., and will be paved with a special tile made by the Los Angeles Pressed Brick Co. The tiles, 1 ft. square and 2 in. thick, will be in two colors, laid in black cement.

There is some talk of building a large addition to the rear of the Palace Hotel in San Francisco, adding 350 rooms. The brick for the present building was furnished by the Los Angeles Pressed Brick Co.

The Midway Brick Co. has been incorporated at Bakersfield, Cal., with a capital of $25,000, by E. L. Burnham, J. C. Sloan and others.

## THE BUCKEYE STATE.

Columbus, O., March 15.—Building and paving brick manufacturers in Ohio are more than pleased with the outlook for business during the coming spring and summer, this being based upon the large number of inquiries that are being made concerning both lines. As an illustration of the reliability of this report, a statement from the Pursell-Grand Co., of Cincinnati, is of especial interest. This firm says:

"We are more than pleased with the outlook in the brick business for the coming season. We are receiving numerous inquiries every day, and as a result we feel sure there will be lots of good business in the spring. There are several large buildings contemplated here for early erection, but the plans have not fully crystallized."

In the sewer pipe trade, an official of the East Ohio Sewer Pipe Co., of Irondale, O., says: "We are greatly interested in reading the reports of the proposed municipal improvements planned for this spring and summer. Money is easy, and the selling of bonds for municipal improvement work will not go begging. This is an excellent indication that business with sewer pipe manufacturers will be better than ever this season."

This report has been followed by one from Akron, wherein it is conjectured that the American Sewer Pipe Co. contemplates rehabilitating the old N. U. Walker sewer pipe plant, which is located on the Ohio river, midway between East Liverpool and Wellsville. Machinery is being replaced and operations are expected to be resumed early this spring. The Ohio Valley plant of this company at Toronto, O., is being put into shape with new machinery ordered from the Stevenson Foundry & Machine Co., and active operations will be resumed there this spring.

Charles Breisinger & Son, who have been manufacturing brick near West Bucyrus, have bought 10 acres of clay land in North Bucyrus and will erect a new brick plant, which is expected to be ready for operation this spring.

J. J. Urschell has completed the formation of the Enamel Vitrified Brick Co., with headquarters at Toledo. The company controls a patent for the manufacturing of a vitrified brick which it is declared will revolutionize the industry. Experiments have been conducted at Willoughby and Bucyrus, O.

J. A. Shipley has formed the Richwood Clay Co., of Richwood, O., with a capital stock of $100,000.

The Great Northern Sewer Pipe Co., at Empire, O., and the St. Marys Sewer Pipe Co., at St. Marys, Pa., the latter plant having been started originally by Thomas Anderson of East Liverpool, O., have given the Stevenson Co., of Wellsville, O., contracts for the improving of their mammoth presses, which contract is now being executed.

F. R. Kanengeiser, formerly with the Bessemer Limestone Co., of Youngstown, O., is promoting the organization of a company with $100,000 at Sharon, Pa., and plans to take over the J. V. Rose fire brick plant near there. The plant has been idle over a year. Considerable new machinery is to be installed.

The building codes of Cleveland (O.) are to be changed so as to permit the use of interlocking clay tile, a product now forbidden. Similar changes are planned in the building codes at Youngstown.

According to the annual report of the officials of the Northwestern Ohio Drain Tile Association, more tile was made during 1910 than any previous year. Reports in advance indicate that the business for 1911 will exceed the totals of last year.

James G. Barbour and C. W. Keplinger of Canton, O., have formed the Miverly Paving Brick Co., of Canton, with a capital stock of $300,000.

The annual meeting of the Robinson Clay Products Co. was recently held. The concern operates nine plants at Akron, Canal Dover, Midvale and Malvern, O. Head offices are at Akron. New officials are: President, H. B. Manton; vice-president, F. W. Butler; second vice-president, W. A. Humphreys; secretary, John J. Starr; assistant secretary, Thomas Rockwell; treasurer, R. L. Robinson. The board of directors is composed of the above with the additional name of Dr. F. C. Read.

Gustave Boesel, of New Bremen, has taken up the proposition of forming a company with $15,000 to build a plant and manufacture brick at Sidney, O.

The plant of the Dillinvale, O., Brick & Tile Co. has been bought at sheriff's sale for $10,500, by Harry Walker.

H. H. Newell, an attorney at Upper Sandusky, O., has taken possession of the Zahn Brick plant there, by trading his farm of 238 acres six miles north of Marysville, O., and the payment of $6,850.

The Niles (O.) Fire Brick Co. is working steadily and at present is employing nearly 250 workmen.

An old sewer pipe plant at Lisbon, Columbiana county, O., owned by the American Sewer Pipe Co., has been bought by the Steubenville (O.) Oil & Gas Co.

At a meeting of the stockholders of the Noble Brick Co., at Marietta, O., the following officers were elected: President, W. H. Jett; vice-president, H. E. Mathaney.

Capital stock of the Hinde Brick & Tile Co., at Sandusky, O., has been increased from $50,000 to $100,000. The hollow ware department of this plant has started operations and is making 20,000 drain tile per diem.

All machinery at the plant of the Mohr-Minton brick plant at Hamden, O., is being shipped to Nortonville, Ky. The property is being dismantled.

Reorganization of the Columbus & Hocking Coal & Iron Co. is progressing slowly, and it may be July before all detail work is completed. Receivers are, however, making great progress in improving the brick property of this concern. A new steam power plant is being installed and all machinery overhauled. When improvements are completed the plant will have a capacity of 100,000 brick per day.

Capacity of the Toronto Fire Clay Co., of Toronto, works of which are at Empire, O., is to be increased to 10,000 per day.

Paul S. Barnhart has formed the Wooster (O.) Shale Brick Co., with $150,000 capital.

## WEST VIRGINIA.

Wheeling, W. Va. March 14.—Business is looking good with brick manufacturers in the Panhandle state. The manufacturers in the Upper Ohio Valley and in the Hancock County territory, which is the largest fire brick producing county in the state, are preparing for a busy season. The demand for paving materials is somewhat heavier this year than heretofore at this season.

At the plant of the United States Tile Co., at Parkersburg, improvements are the order of the day. The company is installing new driers and represses and is erecting several new kilns. The plan is to double the capacity of the plant. Such a decision was reached at a recent meeting of the stockholders of the company.

At the annual meeting of the Queen City Brick & Tile Co., at Cumberland, Md., the following officers were elected: President, Warren C. White; secretary, Carl C. Hetze; treasurer, Frank A. Blaul. This plant is being operated on full time, and orders are plentiful.

Frank A. White has been elected president of the Easton Brick & Tile Co., which was recently formed with a capital stock of $25,000 at Easton, Md.

William Nichols of Wellsburg, has been selected general manager of the new Columbia Tile Co., which will operate at Grafton, W. Va., in the former plant of the Enpress Glass Co. Machinery is being installed, and operations are expected to commence before the end of the month.

## FROM THE EXTREME NORTHWEST.

Bellingham, Wash. March 8.—The tramway between the clay pits at Summit and the old Great Northern right of way, along which the Bellingham-Skagit interurban line will be constructed, has now been completed by W. A. Doyle, one of the original founders of the Denny-Renton Clay & Brick company, of Seattle, who, with his two sons, is now contemplating the installation of a huge brick and clay plant on the south side at Bellingham. When this factory gets fully under way, which will probably be some time during the coming summer, it is the intention to haul the clay by wagon from the end of the tramway and later to enter into a contract with the Bellingham-Skagit line.

Experiments in connection with the clay, which have been carried on for months past, are now nearing completion. An experimental drier and grinder has been installed in the Industrial Iron Works building, on which a lease was taken some time ago, and this has just been started for the purpose of conducting further tests.

No definite arrangements have yet been made in connection with the location of the big brick plant, but negotiations are now under way towards the purchase of a portion of land with a 220-foot water frontage and a length of 1,100 feet, almost directly in front of the Industrial Iron works. If this deal goes through it is probable that a start on the factory will be made in the near future. The cost of this plant will be in the neighborhood of $150,000 and the initial capacity will be about 30,000 brick daily. The number of men to be employed at first will be about sixty.

The factory will be constructed in such a way that additional units may be added to it at any time and it is probable that one of the first big improvements to be made to the proposed site will be the construction of a deep water dock. It was, as a matter of fact, the possibility of securing water transportation that first drew Mr. Doyle's attention to the possibilities of Bellingham for a factory of this kind.

The main products at first will be fire brick, pressed brick and fire proofing.

A contract has been let by Charles K. Henry to the Western Clay Company, of Portland, for the hollow tile that will be used in the partitions of the new Multnomah Hotel. The work will all be done in Portland, and the job is the largest single order of the kind ever placed here. The hotel will require 200,000 sq. ft. of partitions of this kind.

The plant of the Western Clay Company will be started at work on burning the tile immediately, and the material will be delivered as it is needed. During the winter work has not been pushed on the hotel, but as the days lengthen the men will be employed longer hours, and it is expected to have the exterior construction pretty well along by the end of summer.

It is reported that parties hunting for brick and tile clay found at least 100 acres adjoining Falls City, Wash., and reaching to within 300 feet of the railroad, that could be made to yield material for 600,000,000 brick. It is expected that a project is on foot to locate a plant there.

The Lewistown, Wash., business men who have for months been perfecting plans for the establishment of a large brick and tile works, now have everything in shape and have organized the Lewistown Brick & Tile Manufacturing Company with a capital of $75,000. The directors are George J. Wiedeman, Nelson J. Littlejohn, Frank E. Wright, John Gretencourt, J. E. Lane and O. W. Belden. Mr. Gretencourt comes here from Indiana and has had many years of experience in the business. He will manage the enterprise. The company has purchased a large tract of land near the town which contains an immense supply of the shale to be used in making brick and tile. The machinery has all been ordered and will be installed in time to permit active operations early in the summer.

The Pasco (Wash.) Brick, Tile & Construction Company is the name of the new brick manufacturing concern which is establishing a yard here. J. E. Bennett of Spokane is president of the company; F. R. Dethart, late of Wisconsin, secretary; E. A. Guerin of North Dakota is treasurer, and W. H. Flanders of Spokane is the yard superintendent. The company has purchased a tract of land and have begun preparations for converting the large body of clay lying near the bridge into brick and other building material.

N. B. Brooks has purchased the half interest of Phillips & Aldrich in the brickyard near Goldendale, Wash. New machinery will be installed and the first kiln made early in the spring.

The Hub City Brick Co. of Centralia, Wash., have enlarged their plant during the winter and expect to make 3,000,000 brick this season. S. L. Alexander & Son are the owners and managers.

The Western Building Co. of Spokane, Wash., of which Jno. Harms is the manager, does a large jobbing business extending over Washington, Oregon, Idaho and British Columbia. The company makes a specialty of handling Potlatch brick, the output of the Potlatch Lumber Co., and will distribute during the present year over 7,000,000 of these brick.

The Lovegren Lumber Co., Portland, Wash., has arranged for the expenditure during 1911 of $1,000,000 in the eastern part of Washington County in the building of six miles of railroad and the erection of manufacturing plants.

### Brick Plant Contemplated.

Near what is to be the town of Cherry Grove, is an immense mountain of red clay, which analysists report will make a fine quality of pressed and semi-pressed brick and tiling. To utilize this to advantage a brick and tile plant will be erected, the waste from the mill making an initial saving of $2 per 1,000, the average price paid for fuel by brick manufacturers. The latest labor-saving machinery, steam shovels and other appliances will be used in operating this plant.

Mr. Lovegren, who has opened an office in Portland, said:

"The prospects of Preston, Wash., when I first went there and established a mill could not in the least be compared with those of Cherry Grove. Our company will be operating by the end of the year and we will load cars at our mill with lumber and brick which will be distributed directly to all parts of the country."

Mr. George W. Nushaw, district manager for the C. W. Raymond Co., of Dayton, Ohio, has installed a large shipment of machinery at the plant of the Standard Lime & Brick Co., Missoula, Mont.

M. Halpin, of Illinois, has assumed his duties as superintendent of the Fromberg (Mont.) Pressed Brick & Tile Co., succeeding H. H. McHose. Mr. Halpin came from Greenville, Ill., and was formerly engaged at brick industries in Galesburg and Momence, Ill. The machinery at the Fromberg plant is being overhauled and everything placed in readiness to start the best season ever for the concern, according to General Manager Frank Church.

## THE CHICAGO SITUATION.

Chicago, March 13.—The weather here has been comparatively mild for a week or so, and the building prospects look more pleasing. However, there is still a tendency to hold off for a time as yet, and there has been only a limited amount of work actually undertaken in the city. There is said to be more work on the architects' boards now than has ever been the case in the past, and the indications point to a year of great activity for brick and clay lines.

A few large buildings in the loop district have been started recently, and others are to be commenced soon. Outside of the loop there is a considerable amount of activity, and the prospects favor a decided advance over last year. These are more than idle reports, because the work is actually to be started very soon.

There has been a strike declared by the plumbers, steamfitters and kindred industries in the loop district, and this has tied up work in that locality temporarily. It does not at this time promise to be very serious, and will not affect structures in any other locality of the city. There have been rumors that a strike of this kind would be called for some time past, though it was believed that the matters under discussion would be settled without any trouble. It seems that there will be a settlement of this matter in the near future.

Work outside the city, that is, in the country districts, is more active than here, and the brick men say that there is a more general demand from the outlying districts. This can only be accounted for by the fact that there is still a certain amount of caution on the part of the contractors in the city to hold off until the weather is sure to be settled.

The annual exhibition of the Chicago Architectural Club was opened for the benefit of the public on March 7, at the Art Institute. There were about five hundred exhibits, which comprise models, architectural drawings, photographs, and terra cotta. There were quite a number of interesting exhibits, and the changes in architectural ideas were quite strongly marked. Every type of building, from the cottage to the forty-five story design, were among the displays. To building material men as well as to architects, the whole was full of pleasing surprises and of more than ordinary interest.

According to reports, there is to be more brick street work done in Chicago this year than for a long period. In the past there has been an effort, that has been at least partially successful, in keeping brick off the streets here. The contractors of other materials have fought against the brick street, but now it is said that there is to be a change, and that the results will be very beneficial to the paving brick manufacturers. Last summer and fall there were a number of down town streets paved with the creosoted block, and there has been an effort to show how superior these were to many other classes of paving materials. It is too early to say much about these, though in the past they have not been as satisfactory as the claims made for them. It is pleasing to learn that there will be more brick streets here in the coming months.

Sewer pipe and conduit work looks favorable for the present year. There is considerable of both lines to be done in the next few months, and the manufacturers feel very much pleased over the outlook on this account. Prices on sewer pipe are not as gratifying as they should be, and there is or should be some action taken looking toward a movement for a more profitable return in this respect.

The McRoy Clay Works have been very much elated over the way the demand for conduits has improved with them of late. They are quite busy at their plants and say that the prospects offer a most pleasing future as far as can be seen now. The indications are that there will be more work of this kind undertaken this year than for some time. They have about as much as they can do now.

The Illinois Mosaic Tile Co. are doing a very fair business, but it is a trifle early for them to see much change at this time. From the prospects there should be a good year, and they are anticipating a very fair demand for their line of work later.

The Hydraulic Brick Co. are doing a moderate business, but find that the demand thus far has been somewhat off. However, as the indications for building work are so favorable they look forward to a big increase in the demand for brick during the next few months. It is just a trifle early to count on much work and many sales, and they are content to wait until the tide turns.

The Edward C. Racey Co., representing the Metropolitan Paving Brick Co., Canton, Ohio, find the situation to be pleasing. While the demand for pavers is quiet as yet, there is in prospect a very much better demand for brick of this kind than there has been in the past. Mr. Racey stated that there was reason for the belief that the year would offer many changes for the betterment in the paving brick industry.

The Chicago Retort and Fire Brick Co. continued to note a good demand for the various fire clay products manufactured by them. With their plant in full operation and the demand fine, there is no cause for complaint on the part of this company. The company has increased its capital stock from $120,000 to $250,000.

The Chicago Sewer Pipe Co. say that the demand for sewer pipe is fair with them. There has been a lull in the demand for the past few months, but they are counting on a more decided increase in the near future. Indications offer a more gratifying aspect than they did.

The Midland Terra Cotta Co. expect to begin the manufacture of architectural terra cotta within a month or more at their new plant here. Work is being rushed on the same and there has been progress noted in the construction work of late.

The Bonner and Marshall Co. say that there has been a more active demand for face brick in the past few weeks. They have recently sold a number of orders for their well-known oriental brick and feel much gratified over the indications for the near future in brick lines.

The Jenkins and Reynolds Co. continue to find the demand for face brick just a trifle slow as yet. Mr. White was hopeful of a change very soon, as the situation offers very gratifying encouragement in this respect.

The Chicago Brick Co. have resumed operations at their plants after a close down for the installation of some new equipment. Mr. Jacobs stated that the indications for the building brick industry were of the kind that made the prospects for the industry very hopeful.

The Calumet Brick Co. are doing very nicely in the building brick line. The reports from this company are to the effect that there will be a big demand for building brick this spring. They are operating full at their plants.

The Western Clay Products Co. is the title under which a company has been incorporated at Chicago with a capital stock of $10,000. The incorporators are R. H. Green, Wm. E. Dee and W. J. Gilbert. The company expects to do a general manufacturing business in the clay line.

## HOOSIER NEWS.

The Sprang Clay Products Co., Ft. Wayne, Ind., which operates tile plants at Sheldon and Aboite, Ind., will manufacture building blocks, fireproofing and hollow brick at their Sheldon plant.

This plant is equipped with four Stewart patent kilns and has J. D. Fate Co. machinery throughout. M. J. Sprang, the hustling general manager, says that he intends to double the output of this plant at once. They also manufacture drain tile from 4 in. to 24 in., and have had a very prosperous year.

The Sheridan brick works, Brazil, Ind., which formerly employed steadily over one hnudred men, but which went into the hands of a receiver over a year ago, is to resume operations. The plant was taken over by the German Investment & Securitis Co., of Indianapolis, on a mortgage. Recently this company turned the plant over to a new and practical company, which will at once begin the work of tearing away the old and building new kilns of a modern pattern, and is installing new machinery throughout the plant. Work on rebuilding the plant has already begun, and in a few weeks the plant will be ready for operation. T. G. Hornaday, of Chicago, formerly of Indianapolis, and the auditor of the Sheridan plant, will have charge as manager.

The new company will spend about $25,000 in improvements. Facing brick will be manufactured exclusively. The company expects to begin with a daily output of about 30,000 brick. John Vanes will remain as superintendent of the mechanical department.

At the recent meeting of the stockholders of the Angola (Ind.) Brick and Tile Company the following officers were elected: L. E. Smith, president; F. D. Morse, vice-president; C. Carver, treasurer; D. C. Ewers, secretary and manager. An 8 per cent dividend was declared.

The erection of a new clay digger is about completed at the Krick, Tyndall & Co. plant at Decatur, Ind., and as soon as the track can be laid the new engine and machinery will be put in operation, thus increasing the capacity of this already large plant to a great extent.

Face brick from the Brazil plant of The Hydraulic Press-Brick Co. has been chosen for the new Heison building to be erected in Chicago.

At a stockholders' meeting of the Ridgeville (Ind.) Tile and Brick Company of Ridgeville, it was decided to increase the capital stock from $10,000 to $20,000.

## NEW ENGLAND.

Boston, Mass., March 12.—The past month has been a very quiet one in the market for brick, a fact amply explained by the cold and the snow. About prospects for work during the coming spring and summer every one interested speaks quite as cheerfully as heretofore.

One of the biggest vacant land sales that has been closed in Cambridge, Mass., for a long time is that whereby the New England Brick Company conveys to Joseph H. Allen and Otto M. Frank, trustees of the University Park Land Co., a tract of almost 1,000,000 sq. ft. on Concord avenue, Chilton, Alpine, Dale, Fern, Garden, Walden, Birch and Field streets and Bay State road. The price is said to have been for a figure in excess of the total taxed value of $106,000.

The property will be developed and placed on the market this spring. The city has spent $85,000 in putting the intersecting streets through.

The New England Brick Company secured the contract for 5,000,000 brick to be used in the construction of the Perkins Institute.

W. J. Jordan, of New Haven, Conn., who purchased the business of the Phoenix Brick Co., has formed a corporation under the name of the Charter Oak Brick Co., to operate the yard.

What will perhaps be news of interest is the statistics of the brick industry about Middletown. Just alone on the Branch road between Berlin and Middletown, there are a total of 14 brick yards, with output of 98,000,000 brick per year. To burn these brick it requires 17,000 cords of wood, of 1,200 carloads, and to move the brick off the Branch, the railroad company has to furnish 8,000 cars. As a railroad engine on Branch can haul about 18 cars, it will take nearly 200 trains to move them. The freight charges on these cars averaging about $22 per car, would be nearly $173,000. The cost of the wood alone to burn these brick will run up to nearly $100,000. So the brick industry in that section represents a large sum of money each year.

The Jacobs Brick Co., of Berlin, Conn., has elected officers as follows: President and general manager, F. J. Knox; secretary, W. H. R. DuBois; treasurer, W. R. Beckerley. The directors chosen were: M. E. Jacobs, W. R. Beckerley, Frank J. Knox, W. L. Damon and W. H. R. DuBois. The company is at the present time putting its plant in thorough repair for the coming season and anticipates a successful year. Its aim will be to make its product the best that machinery, skilled labor and competent management will produce.

The contract for supplying the sidewalk brick at Somerville, Mass., during the present year has been awarded to the Parry Brick Company, and the sewer brick to the New England Brick Company.

Officers and directors of the Rosslyn Brick Company, Rosslyn, Va., were elected as follows: F. Baker Weaver, president; George W. Wise, vice-president and general manager; W. W. Barnes, secretary; George A. Weaver, treasurer; and W. T. Weaver, director. The following were present at a dinner given by the company: F. B. Weaver, W. T. Weaver, George W. Wise, H. G. Young, George A. Weaver, R. Marcey, W. W. Douglas, E. R. Haight, R. W. Darby, J. B. Hammond, H. S. Robinson, J. E. Burch, C. M. Bullock, S. R. Compton, and W. W. Barnes.

The Pendleton (S. C.) Brick Co. has been incorporated with $10,000 capital stock. It will continue its established plant with a daily capacity of 40,000 to 50,000 brick. W. S. Pack, president; W. M. Pack, vice-president; W. N. Trowbridge, secretary-treasurer.

## THE DOMINION.

The total Canadian production of structural materials and clay products in 1909 was valued at $16,533,349, compared with $11,339,955 in 1908. The value of the clay product has increased 102 per cent from the production of 1900, but during the same period the value of the imports of clay products increased 152 per cent.

The clay products made in Canada comprise brick of various kinds, firebrick, porous fireproofing brick and blocks, sewer pipe, drain tile, pottery and sanitary ware. According to the returns received the total value of the clay products sold in 1909 was $6,450,840, an increase of 43.3 per cent over 1908. Of the total value of the 1909 clay production, 76 per cent was building and paving brick, and about 16 per cent sewer pipe and tile. Important as are Canada's clay industries the output is far from sufficient to supply the demand. Of the imports in the fiscal year ending March 31, 1909, over 51 per cent came from Great Britain, 32 per cent from the United States, 7 per cent from Germany; and France, Austria-Hungary and Japan were also important sources of clay products.

The imports during 1909 were derived chiefly from the United States and Great Britain, the former supplying building stone, paving blocks and marble.

The clay production for 1910 included brick to the value of

$5,930,630, sewer pipe, fire clay, drain tile, pottery etc., $1,669,370 total $7,600,894. The sand-lime product in 1909 was $201,650; in 1910 $360,000.

These reports show an increase in these lines, but not commensurate with the increase in demand as is shown by the advance in structural lines and also in the imports which are very large. This indicates that there is a field here for enterprising companies to establish clay plants.

The name of the new $2,000,000 company is the National Brick Co., of Laprairie, and the law firm of Greenshields, Greenshields & Languedoc applied for a charter.

Mr. Charles Greenshields, when seen said that he was not in a position to make any announcement in regard to the interests behind the project, but from another source the information was gained that some strong financial people are interested in the new concern, and with them are several prominent firms who are large users of bricks. The names of the directors, however, will not be officially announced until later on,

The brick-making industry is thriving at Estevan, Saskatchewan, the Estevan Brick & Coal Company's output being 6,000,000 bricks for 1909, and 10,000,000 for 1910, the shipments totalling 306 cars for the former year and 455 cars for last year. But despite these large shipments it is said that there are still more brickyards required to supply the demand, since the country is enjoying a boom, many from the States locating in this country.

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### THE BUCKEYE STATE.

Columbus, O., March 11.—With the approach of the spring season, brick and clay manufacturers declare that the situation is looking very bright, and that some good contracts are expected to be placed before another month passes. One of the best contracts to be placed in eastern Ohio during the last week was the awarding of the new Pennsylvania railroad station at Steubenville, O., to Cuthbert Bros. Co., Pittsburg, Pa. This will be built of brick, and will come from the plants of the Toronto Fire Clay Co., at Empire and Toronto, O. The Nicholson Brothers of Toronto, are owners of this plant.

Many similar contracts are pending, and when this business is given out in different parts of the state, it really looks as if the brick industry would take another step forward.

City Engineer Albert Kotte of Alliance, O., is preparing plans for a large reservoir to be built at Georgetown, O., to hold from 300,000,000 to 400,000,000 gallons. Brick, it is said, will be used in the construction of this improvement.

W. E. Tripp of South Webster, is at the head of the South Webster (O.) Clay Products Co., which has recently been formed, with a capital stock of $10,000. He was recently in Portsmouth, O., and told of reviving the plans of this company. It was arranged to form this corporation about a year ago, but because of the sudden death of two of the men interested, the project was delayed until now.

Orson H. Ogier, of McArthur, O., has become identified with the Puritan Brick Co., of that place and will make his headquarters at Rosedale, near Covington, Ky.

A number of improvements are being made at the plant of the Portsmouth Granite Brick Co., at Fire Brick, Ky. Additional paving brick machinery is being installed together with new elevators, screens, tracks, tunnels, the latter being of the waste heat type. The capacity of the plant is being increased.

The Crume Brick Co., at South Dayton, O., has ordered a 9-foot heavy duty dry pan from the Raymond Co., of Dayton. This machine will be installed during the next 30 days. At the annual meeting of the board of directors of the Crume Co., the following officers were elected: President, W. H. Crume; vice-president, John V. Lytle; secretary-treasurer, R. A. Crume.

President Jacob Miller of the Logan Clay products Co., is one of those optimistic men who believe that the brick plants in the Hocking Valley will experience a heavier business this season than ever before. Mr. Miller is at the head of the Miller Rubber Co., of Akron, O. Advance orders placed with the Hocking Valley Brick manufacturers this early season indicate that the opinion of Mr. Miller is not out of the way.

The Thomas Moulding Co., of Chicago, is reported to have closed a deal for the taking over of the Buckeye Fire Brick Co.'s plant at Scioto Furnace, near Portsmouth, O. It is said the Chicago company secured the controlling interest in the Ohio company by purchasing the interest of N. G. Spangler, division freight agent of the B. & O. Southwestern, and who is located at Chicago. E. P. Stevens will remain in charge of the plant, it is reported.

Information from Marietta, O., is to the effect that W. H. Hyde, of Trimble, O., formerly manager of the Trimble Brick Co., and who is said to have disposed of his holdings, has been in Marietta looking for a location for a new brick plant.

The Covington, Ky., property of the Busse Brick Co., of Cincinnati, has been purchased by Frank Broering, of the A. Meier & Co., Cincinnati. The consideration involved is not announced.

A contract calling for 9,000 sq. ft. of glass facing brick to be used by the Cleveland Illuminating Electric Co., in their new turbine engine room has been awarded to the Sanitary Glass Facing Brick Co., of this city. It is one of the largest contracts for glass facing brick let in years.

A brick manufacturer in the Hocking Valley, south of this city is authority for the report that the total sales for all plants in the valley showed an increase of over 400 per cent for January 1911, over January 1910. The demand is general from Chicago, Cincinnati, New York and Philadelphia.

To obtain speed, the council of Detroit Mich., believed that the purchase of pavers from the Alliance (O.) Clay products Co., would help some. Accordingly a contract for 1,000,000 pavers was given the Stark county company. The paving block are to be delivered during the spring and summer, and are to be used on the new Detroit speedway.

It is reported that the former plant of the Crystal Glass Co., at Bridgeport, O., will be bought by a new concern which will be known as the H. I. Jeffreys Fireproofing Co., and will be operated soon as a fireproofing plant.

At Portsmouth, O., the Peebles Brick Co., is laying out 50 building lots near its plant.

An additional kiln is being built at the plant of the Heinisch brick plant near Portsmouth.

The Brickbuilders Supply Co., of this city, controls the output of the common brick of the Conrad & Shertzer Brick Co., of this city.

R. J. Dawson has formed the Cuyahoga Brick Co., of Brooklyn Station O., with a capital stock of $125,000. An Ohio charter has been obtained. The Maysville (O.) Tile Co. will erect a new kiln at an early date.

Five new steam boilers are being installed in the plant of the Kachelmacher Brick Co.'s plant at Logan, O.

W. S. Davis, chief chemist for the Puritan Brick Co., at Hamden, O., has resigned to become chief in a similar capacity for the Piedmont Portland Cement Co., now being erected at Rockmart, Ga.

The frozen body of an unidentified man was found in the shale pit of the Imperial Brick Co.'s plant at Canton a few weeks ago.

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### THE MIDDLE STATES.

Plans are now being completed for the erection of a brick and tile factory at Newton, Iowa, at a cost of $40.000. The new factory will employ about fifty men and will engage in the manufacture of brick tile and fire proofing materials.

The Algona (Ia.) Brick and Tile Works are in a prosperous condition, and at the annual meeting a ten per cent dividend was declared and all the old officers re-elected. A substantial surplus went to pay for the big new drying shed. The company has been fortunate in having for its manager Mr. C. R. Madson. The Brick and Tile Works is now one of the most substantial of Algona's manufacturing institutions and its stock at par is considered a good investment.

At a stockholders' meeting of the Central Brick and Tile Company, Ft. Dodge, Ia., the following officers for the coming year were elected: Board of directors, E. O. Fitz, L. W. Schaffner, Joe Wonders, Ed. Brown and Wesley Bennet. L. W. Schaffner, president; Wesley Bennett, vice-president; and E. O. Fitz, secretary and treasurer.

Reductions in freight rates in Iowa on shipments of brick inside the state save thousands of dollars each month to the manufacturers of brick and clay products.

A new tabulation of the effects of the rate reductions has been made, which shows the big drops made in three years time, also the percentage of the old rate in comparison with the new.

The following table compares some of the old rates with new rates:

| Distance Miles. | Old Rate. In Cents Per 100 lbs. | New Rate. In Cents Per 100 lbs. | Old Rate. In Per Cents. |
|---|---|---|---|
| 500 | 21 | 11.8 | 178 |
| 450 | 18.5 | 9.8 | 189 |
| 400 | 16 | 8.1 | 198 |
| 350 | 13.5 | 7.5 | 180 |
| 300 | 11 | 7.5 | 147 |
| 250 | 9.5 | 7.1 | 134 |
| 200 | 8 | 6.5 | 123 |
| 150 | 6.4 | 5.8 | 110 |
| 100 | 4.8 | 4.8 | 100 |
| 50 | 4 | 3.8 | 105 |

The ten old rates given above as representative aggregate 112.7 cents, and as the ten new rates aggregate but 72.7 cents it will be seen: Where the new rate exacts as a transportation tax the payment of $1, corresponding shipments under the old rate would have required the expenditure of $1.55.

The American Brick & Tile Plant, Mason City, Ia., have installed a pyrometer. This apparatus indicates the amount of heat of each kiln which registers on a dial at the plant and also registers on a card at the office, so that at any time the amount of heat in each kiln can be determined at the office. This pyrometer was put in by the Brown Instrument Co.

The Gillette Brick & Tile Company, Woodhull, Ill., has a force of men at work enlarging the drying shed. Two more stories will be added to this structure, thus increasing the drying capacity to keep pace with the demand for the hollow brick.

### THE TWIN CITIES.

St. Paul March 10.—The building season in the Twin Cities suddenly got under way before people in the trade were hardly aware that the new season was starting. Things have looked rather unpromising in many ways, and the prediction has been very frequent that the season would be a slow one. When it is remembered that last year and the year before were heavy building years, it need not be surprising if the present year does not exceed them, for no community can be expected to erect large structures year after year, in numbers sufficient to equal the totals of heavy years. In the smaller structures the season is stating off well, although apparently not quite as promptly as it did a year ago.

Even on the large structures, there are a fair number of them projected for the current season.—quite sufficient to assure that there will be some large items right along. There are also a number of projects which will doubtless be taken up, but which have not reached the point of confirmation for starting this season.

Conditions so far, are only moderately promising for the use of clay wares, although they seem to be doing a better share of the total than was the case in previous years. But notwithstanding this fact, the use of reinforced concrete is very strong in the Twin Cities. There have been no serious collapses in reinforced concrete in the Northwest, and the result is an unbounded faith in the article. But even the faith in the article has not been sufficient to overcome the objection to the appearance of it, and there have been practically no structures erected with cement face. They all have brick curtain walls, and pressed brick face walls, or enameled brick or other material than concrete. Some of the prettiest structures in the Twin Cities are of pressed brick face walls.

The subject of requiring the use of native materials in the public buildings of Minnesota, has been before the Minnesota Legislature, which is now in session, and it has stirred up considerable discussion. Producers of stone, brick and other materails in the state, have insisted that their wares deserve the advantage to be gained by use in state buildings, such as the state university buildings, the state institutional buildings and others. They complain that the state board of control has discriminated against native materials, and they want a law to require the use of home materials. The board of control on its part, answered that there was no discrimination against native materials, and that outside materials were used when it seemed wise, either because of the price which could be made or because of the desirability of other material because of its harmonizing with the architectural scheme.

It was also shown that the board had used a great deal of home material in a number of state buildings. There were some producers in different lines who objected to the demand, because they sold their wares outside the state, and felt that if this state started the home materials cry, others would take it up. North Dakota has already taken up a similar action, and a resolution was passed that state materials and state contractors should be favored. As originally drawn, the resolution proposed to award contracts to state buildings at a difference of not over five per cent over that of outside bidders, but this five per cent clause was stricken out, before it was passed.

Building materials dealers in all lines who ship to any distance have been interested in the fate of the reciprocity treaty with Canada. While the treaty probably would not have any direct bearing upon building materials, it is generally believed that with freer trade relations existing between the two countries, there would speedily be a greater trade in all lines.

Manufacturers and employers of labor using machinery in Minnesota are deeply interested in the probable action of the state legislature with reference to an accident compensation law. The legislature of two years ago, named a commission to study matter and report to the present body. The commission went abroad and looked into foreign systems where they have compensation systems in vogue. When it came to making a report, the commission divided, two entering a majority report and one a minority report. The former proposed a system of compensation for all accidents, with a death loss of $3,000, the entire cost to be borne by the employer, without assistance. the theory being that the cost was a proper charge upon the industry, and should be added to the other costs in establishing a price for the product. The minority report objected to the report on the ground that the proposed law took from the employer his defenses, such as contributory negligence and the acts of fellow servants and made the employer responsible for all accidents, whether he was in the slightest responsible or not. The bill took the matter out of the courts, and held the employer and employe to the decision of a board of arbitration thereby refusing the common law right of appeal to the courts. The minority report held that this refusal to permit an appeal to the courts, would be unconstitutional, and so provided for an elective system, whereby the employer and employe agreed, at the time of entering into the engagement for work, whether to resort to the courts or to take the provisions of the code, as a means of preserving the constitutionality of the law. The labor interests objected to both bills, especially to the minority bill, which provided for an assessment upon the wages of employes, of not to exceed one per cent, to bear a portion ot the cost. It must be remembered that under the present system, only about one action at law in ten receives a verdict for damages. Under the proposed codes, all would receive damages, although under the minority report, the damages would be lessened by contributory negligence.

The subject of trade education in the public schools is being taken up in the Twin Cities. In St. Paul, under the auspices of the Builders' Exchange, a class of one hundred boys was started last fall, working on mechanical drawing, woodworking and other things, and the class was so successful, that the first of the year the board of education took up the subject and increased the class to three hundred. While brick-laying has not been included, it is to be taken up later if possible, and there is no reason why it should not be. In Minneapolis, a committee of the Builders Exchange is working on the subject and the matter is being enforced by committees from other bodies, and next fall will doubtless see a marked extension of the manual training courses.

The meeting of the Northwestern Cement Products Association in Minneapolis the first of the month, showed that the organization has changed materially. There were a few who did something in concrete blocks, but the blocks have apparently lost caste with nearly everyone. Cement silos are still being made and cement drain tile commands considerable attention. The subsidence of the cement block is so noticeable as to be astounding. In the Twin Cities, there are hardly a fourth of the number of plants engaged in making them that were in business two or three years ago.

The Twin City Tile and Marble Company, of Minneapolis, has moved its quarters from 319½ South Sixth street to 312-314 South Seventh street. The firm handles ceramic mossaic tiles for floors, walls, ceilings and other work.

The Hydraulic Press Brick Co., which has heretofore maintained its general office at Menomonie, Wis., and its sales office at 211 South Fourth street, Minneapolis, has recently moved the general offices to Minneapolis, and the business of this company will be entirely handled from the single headquarters hereafter. The force at Menomonie has been transferred to Minneapolis. With the enlarged quarters provided in Minneapolis, it was found advisable to have a single headquarters.

The new brick company which has been putting in a plant at Feeley, Minn., is burning its first kiln of brick, there being about 1,500,000 brick in the first lot. The yard is running full blast, the company has a force of men turning out 30,000 a day from the machines. This company has been in Feeley considerably over a year, building and getting ready for business. They have one of the most up-to-date brick plants in the state including steam drying shed, in which brick can be prepared for burning in any kind of weather.

It is anticipated that when they get to going nicely they will run the year around. They have their supply of wood for the coming year, and have contracts and arrangements made for the cutting of thousands of cords for the coming season. Manager Carlson states that the company has sufficient clay, which, by the way, is of the finest quality, to last them over fifty years.

The Minnesota Farmers' Brick & Tile company of Austin, Minn., has just started up the new machinery installed, for the making of larger sizes of drain tile, up to 24 inches diameter.

The new machinery just installed cost $15,000, and this addition means the employment of over 100 men.

This company is now filling an order for 600,000 brick to be shipped to Iowa and will take up the work of making tile next week as it has booked one order for $20,000 worth of tile.

The extensive draining of wet land in southern Minnesota will be of great benefit to the state, as it will open thousands of acres, which cannot be farmed at present.

There are 29,000 acres in one tract west of there, which is being reclaimed by the draining of the water and the resulting land is the most valuable for farming purposes.

In addition to the other orders, this company is furnishing the government with the brick for the new postoffice there.

Duluth companies handling builders' supplies reported a much better demand during the past week in many lines. Some fair orders were booked for terra cotta and pressed brick. The inference may be drawn from this that considerable new work is being planned to begin early in the spring.

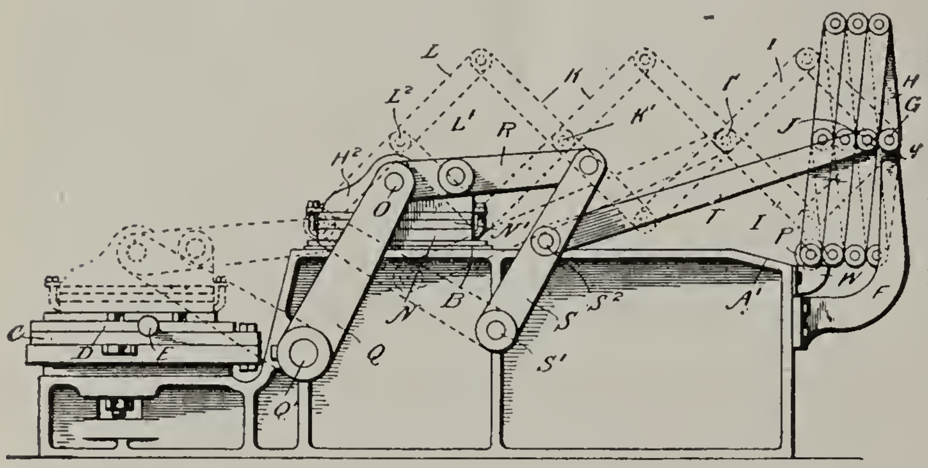
The Dickinson (N. D.) Fire and Pressed Brick Co. have made large shipments of fire brick to Winnipeg and Portage La Prairie, Manitoba, recently. Several Manitoba firms are anxious to handle the facing brick manufactured by this plant.

Ferdinand Leutz of the Hebron Fire and Pressed Brick company states that the output of their plant this year will be 50 per cent greater than last year. They are now making large shipments of their brick to several large cities out west on the Pacific coast, and to points in British Columbia, aggregating nearly 2,000,000 and several millions will be made this year as they are already under contract to supply several large jobs.

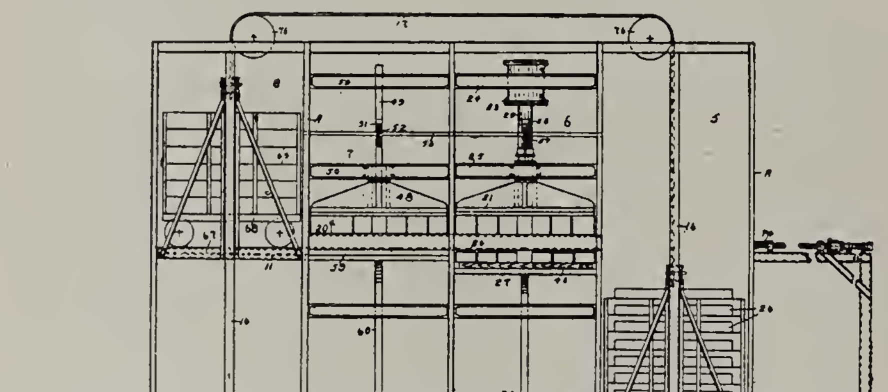
At the annual business meeting of the stockholders of the Barron (Wis.) Red Pressed Brick Company the same officers and board of directors who presided over the affairs of the company during the previous year were unanimously re-elected.

# Recent Inventions of Interest to Clay Manufacturers

975,921—Apparatus for decorating tiles, etc. John W. Young, Zanesville, O. Filed Feb. 23, 1910. Serial No. 545,423. An apparatus for decorating tile, etc., comprising a frame having a top forming an ink distributing surface, a pad upon said frame, bracket arms fixed to the latter, lazy tong links pivoted to said bracket and to each other at their points of intersection, a stamp pivotally connected to said links, crank arms pivotally connected to the frame and to the links of said lazy tong and stamp. In combination with the frame of a tile decorating apparatus having a flat ink distributing top, one end of which is inclined, a pad upon said frame, bracket arms fastened to the end of the latter and extending upward, a rod pivotally mounted in said arms, a stamp, lazy tong links pivotally connected to said rod and to one another and to said stamp, crank arms pivotally connected to said frame and to the links of the lazy tongs, links pivotally connected to said crank arms, an ink distributing roller pivotally connected to the latter, and a well fixed to the frame and in which said roller is adapted to dip.

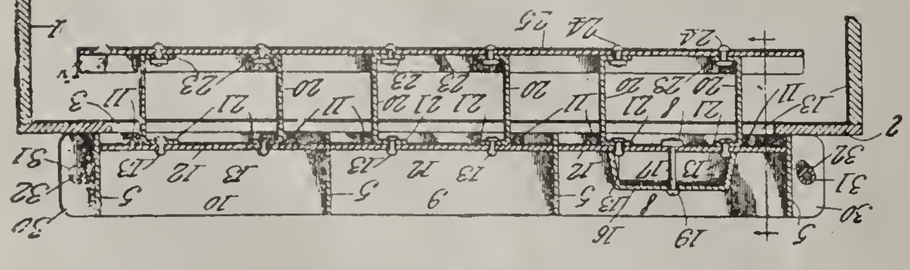


976,243—Brick ejecting mechanism. Frank Zagelmeyer, Bay City, Mich. Filed July 23, 1906. Serial No. 327,394. A brick ejecting machine comprising a plunger, a stationary mold support located directly beneath the plunger, and adapted to receive a plurality of independent molds, the plunger movable into and out of the molds to eject their contents and a yielding support for the contents of the mold during its ejection.

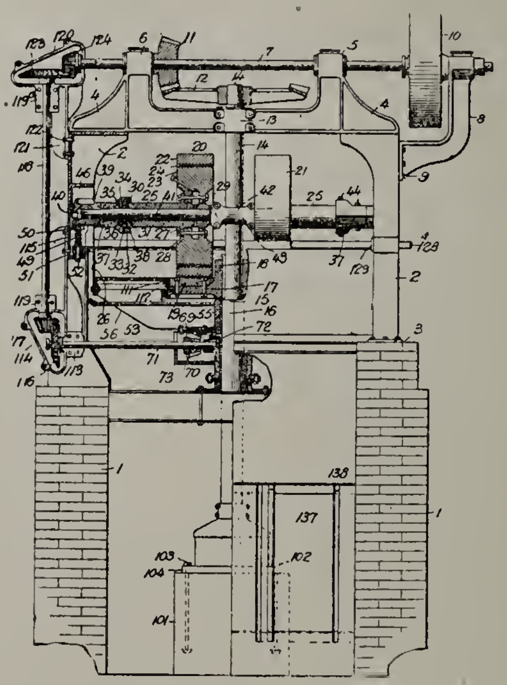


A brick ejecting mechanism comprising a plunger, a stationary mold support located directly beneath the plunger, and adapted to receive and sustain independent molds, the plunger movable into and out of the molds to eject their contents, a yielding support in constant engagement with the mold contents during its ejection, and means for releasably locking the yielding support stationary at a point removed from the mold support to permit the removal of the mold contents.

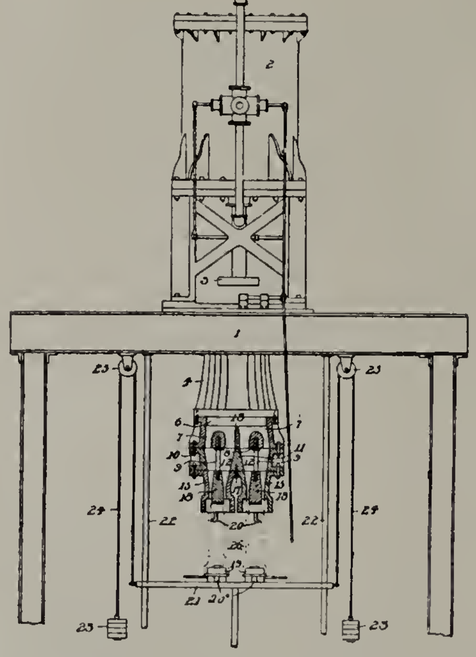
978,600—Brick machine. Herman W. Lampman, Lagrange, Ind., assignor to William E. Snyder, Lagrange, Ind. Filed June 27, 1910. Serial No. 569,187. A brick machine comprising a compartment mold box consisting of side plates having slots therein, a plurality of cross plates each having a plurality of lugs on each end thereof extending through the slots of the side plates and riveted therein, the ends of the side plates being extended beyond the end cross plates, handles mounted between the extended ends of the side plates, a plurality of cross rods extending across the lower ends of each compartment of the mold box, a core plate mounted in each compartment and resting normally on the cross rods, each core plate having a plurality of headed bolts, a hollow core in engagement with said headed bolts and held against movement thereby, a bolt securing each core to its core plate, a back plate having longitudinal flanges, and a pair of connecting plates mounted between each core plate and the back plate, each connecting plate having an upper flange secured to the core plate by said headed bolts, and a lower flange secured to the back plate between the longitudinal flanges thereof.



974,180—Dry pan. Raymond C. Penfield, New York, N. Y. Filed July 13, 1909. Serial No. 507,423. In a dry pan, the combination of a grinding element consisting of a rotary surface, a screening element also consisting of a rotary surface, both situated in substantially the same plane and concentric with each other to form the bottom surface of the pan, a rim encircling the pan, and means for causing the grinding and screening elements to move independently of each other.



975,062—Tie-making machine. George M. Myers, Toronto, O. Filed Jan. 11, 1910. Serial No. 537,461. In a pipe-forming machine, a hopper, a spider ring located beneath the hopper and having a cross-bar therein, rods depending from said cross-bar, one rod for each die, a removable extension ring beneath the spider ring having a divider therein forming openings in the extension-ring, removable pipe-dies beneath the extension-ring, one die for each opening in said extension ring, cores located within the dies and supported by the said rods depending from the said cross-bar, a plug to close the bottom of each die, and means to support the plugs and the pipes while they are forming the said hopper, the spider-ring, the extension-ring, and the pipe-dies being successively connected so as to form a casing.



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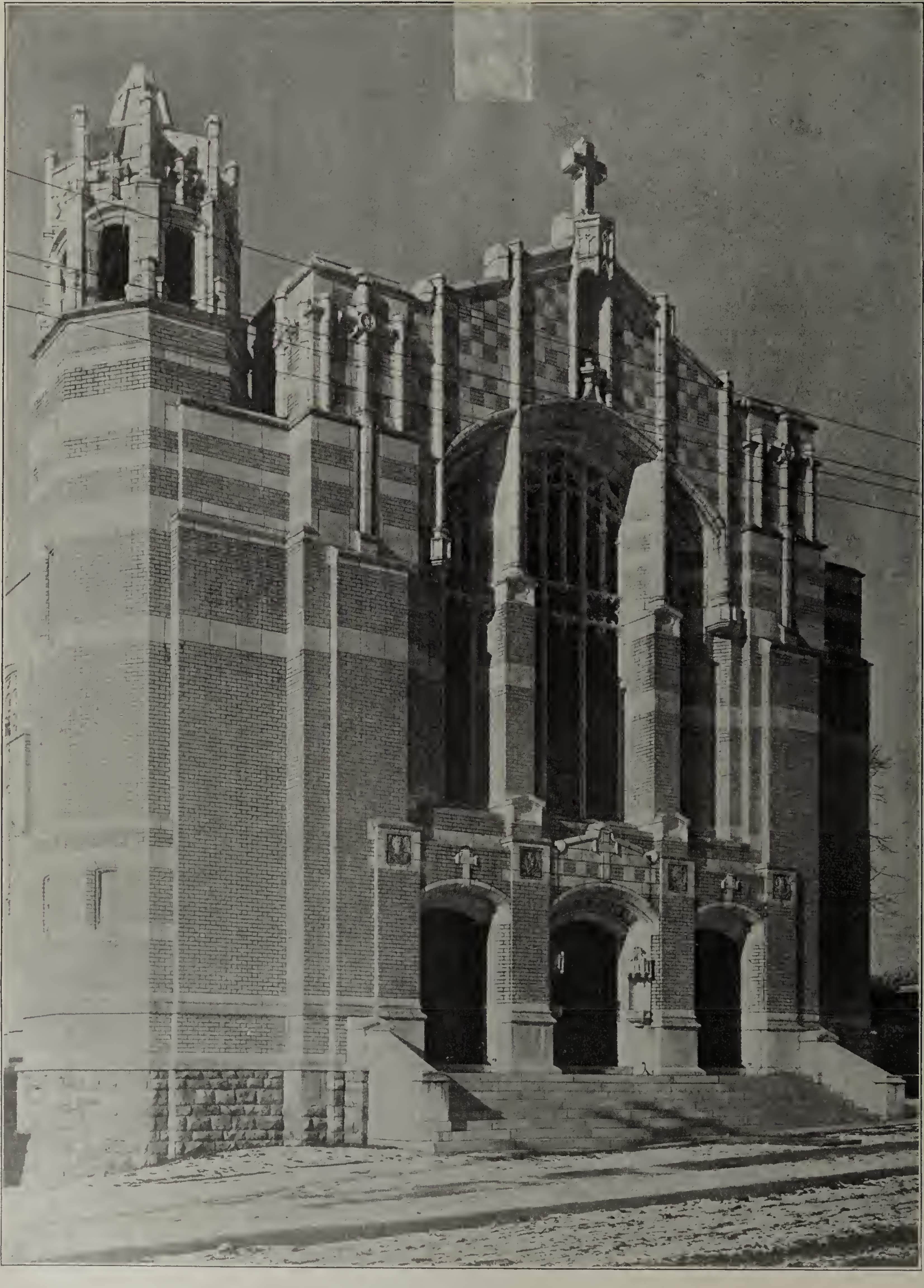


Church of St. John, Kingsbridge Ave. and 230th St., New York City—
Imposing Edifice Finished with White Matt Glaze Terra Cotta, Showing
Possibilities of Brick and Terra Cotta Combinations

VOL. XXXVIII—NO. 7
BRICK
AND CLAY RECORD
APRIL 1, 1911

# TERRA COTTA, THE SEVEN LEAGUE BOOTS OF MODERN CONSTRUCTION

### By Allen E. Beals

A wise man once said there was nothing new under the sun. Terra cotta is no exception. It seems new because it appears almost every day in some unaccustomed form. Like the Seven League Boots in fairy folk-lore, it typifies a means of transition. The one represents the annihilation of distance; the other the substitution for the Assyrian and Egyptian primitiveness in construction, of modern achitectural monuments which grow almost overnight. The Italians builded their ancient monasteries and cathedrals of a form of baked sand and clay burned in crude ovens or open fires, but it remained for the New World to develop this building material and rear gigantic structures of it.

Portion of New York's Billion-Dollar Mile Composed Largely of Burned Clay.

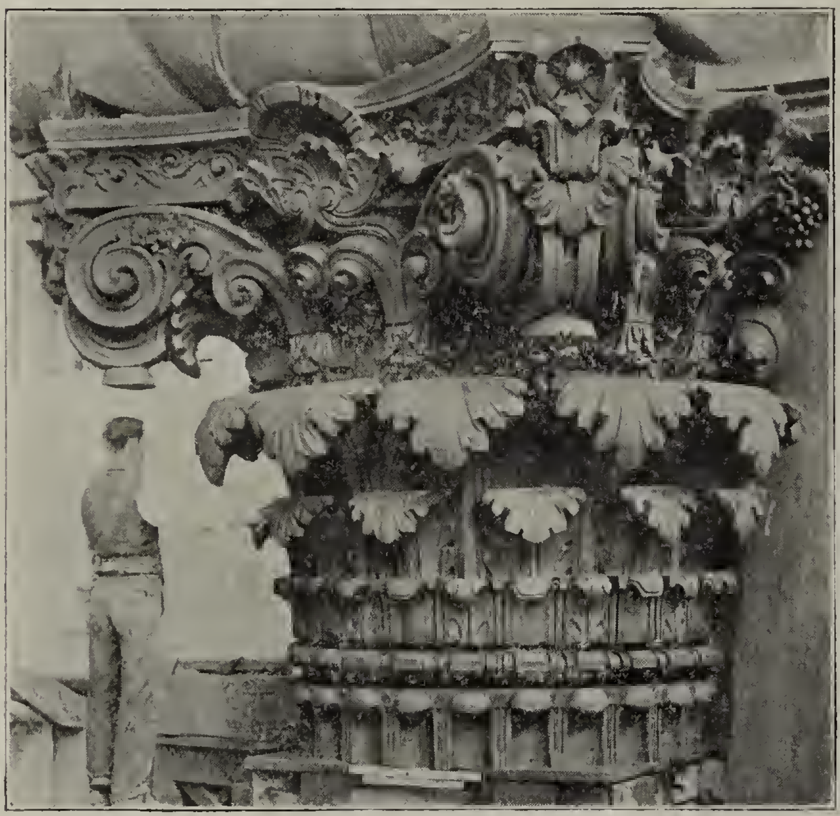
The tourist, coming into New York harbor, marvels at the wonderful skyline represented in the "Billion Dollar Mile." He may have just returned from the very countries where terra cotta was used almost two thousand years ago, but he scarcely realizes that in that great display of invested wealth, many of the principles governing the manufacture of material used in the construction of the Roman Coliseum are actually represented in modern Manhattan. Not one in a thousand knows that in the skyscraper backbone of New York, upon which he gazes from the steamer deck, with a large measure of pride in what he calls American enterprise, 55 per cent. of the total amount of building material he sees assembled in beautiful architectural designs is terra cotta; 30 per cent. is brick; 10 per cent. steel, and the remainder stone and other materials. In other words, 85 per cent. of the materials used in producing this artificial mountain of offices, are clay products.

Terra cotta stands somewhat in the same relation as the elevator in the creation of the modern skyscraper. Without the elevator the skyscraper would be impossible. Without some form of light facade material the thirty, forty, fifty, and now the sixty story building would be economically impossible. Had the architect nothing lighter than stone to use in facing the building, the cost of the steel skeleton would be made prohibitive owing to the necessity for much heavier girders and colums. Here, therefore, architectural terra cotta and terra cotta floor arches and partition walls have their most important function. Its actual importance may be judged from the fact that more than half the material used in the construction of a skyscraper is of this comparatively recent perfection of the world's oldest known building material.

The "cloud sweeper," as the French call it, dates back not more than three decades. It is the child of a most wonderful economic condition. It is the natural successor of a building which, although perfectly sound in its integral parts, is a financial failure because its builder did not sufficiently estimate the unearned increment which his lot or plot represented. Conditions have changed, the assessed valuation of the land upon which his building stands, eats up the margin between it and its revenue and he is forced to increase its income, so down comes his twenty-story skyscraper built of much stone and bulky steel to make way for a building of lighter steel, less stone and—terra cotta.

But outside of the great cities the use of architectural terra cotta was little known until five years ago. Today it is following the lead of fire proofing terra cotta in the construction of small suburban dwellings. One does no have to live in a great metropolis to enjoy the security c fireproof construction. For one-third more than a fram building will cost, one can have a home that makes hou insurance superfluous. That this is so, is due primarily to the nation-wide advertising campaigns which certain terra cotta companies have persistently followed. This, in turn, has created greater fields of usefulness for this material and consequently the manufacturer has been compelled to still further perfect his product.

While the use of terra cotta is rapidly becoming general throughout the country, the close proximity of the natural clay beds to New York city has been a strong factor in developing its use in the east. The skeptical architect needs only to take a fifty minute trip to the world's largest terra cotta plant situated inside the city limits of Greater New York. The Philadelphia architect takes a two hour train, crosses the state of New Jersey and is met by ceramic experts, almost at the door of the great factory . There he sees the possibilities of retaining the small building unit in which he delights to work or, he can have the still larger unit and procure the shades he requires so as to make the color tone of his contemplated structure complete, from sidewalk to gable.



Largest Capitol Ever Made of Terra Cotta, Product of the Atlantic Terra Cotta Co.

Some very marvelous developements have recently been accomplished in the manufacture and use of architectural terra cotta. When certain capitalists decided to build the world's largest apartment house, known as "The Belnord," at Broadway and 86th St., New York, they desired beauty of design commensurate with moderate cost. To have built this entire facade, covering as it does a large city block and running up twelve stories, with stone, would have made its cost far in excess of the $2,000,000 allotted. Terra cotta solved the problem, and the architect, H. Hobart Weeks, used it liberally. All the gray material from the second story up, excepting front brick, is terra cotta. Thousands of square feet were used in this building, which is large enough to house a second class city of moderate size.

The effect, architecturally is that of simple, dignified massiveness. In this case ornamentation was not desired. Another type of building must be shown to illustrate the possibilities of using terra cotta and ordinary brick and effect a most pleasing architectural appearance.

The church of St. John at 230th street and Kingsbridge road, New York, designed by Davis, McGrath and Shepherd, architects, and Calvin Kiessling, associate. has just been completed. The foundation walls were of rough granite, and brick constituted the basis of the superstructure. White matt glazed terra cotta brought out the tones, its soft, slightly lustrous surface catching the light and giving life to the more somber material. This edifice has been viewed by architects, from distant points and they have expressed their approval of the adaptation of this material to ecclesiastical archihtecture.

A New York company, The Atlantic Architectural Terra Cotta Co., recently turned out a most noteworthy piece of terra cotta for an entirely new purpose, namely, that of huge capitols, and thereby opened up still further possibilities for this material.

The illustration shows one of these capitols measuring eight feet high, and seven feet square at the top. It is the largest terra cotta capitol ever made. Had this been carved out of marble each of the twenty-eight capitols would have cost $2,400; done in terra cotta, each cost $400. They are built as decorative features of the State Educational Building, Albany, under the personal direction of Palmer and Hornbostel, architects. These caps were finished in dull cream glaze to perfectly match the marble pillars which they adorn.

Edward H. Putnam, representing the company which manufactured them, says that they represented a saving of $500,000 to the state. Each consists of fifty pieces bound with invisible joints, each one being made under the personal supervision of Mr. Hornbostel, who worked all of last summer on the models until they were perfected in every detail. then the plaster molds were made at the Perth Amboy, N. J. factory.

Each mold was packed by hand and made a little larger than required, to permit of grinding on huge steel discs to make perfect joints. The form was then permitted to heat gradually for two weeks, and then full fire up to 2,250 degrees was applied to the oven for five days, and a week was allowed for each to cool. They were each tested for bearing strength and cracks and those found perfect, representing 95 per cent of the whole, were then shipped by sections in crates to Albany.

This, however, was not the largest piece of terra cotta work of its kind. Over the Pittsburg College School of Medicine is an allegorical pediment depicting Esculapius, the original doctor, perfecting the science of medicine. This is 13½ ft. high and 18 ft. long at the base. It was modeled by Charles Keck. A still larger terra cotta casting is that forming the tympanum of the Rev. Dr. Charles H. Parkhurst's Madison Square Presbyterian church, New York. This is an example of polychrome execution and represents "Worship at the Shrine of Truth."

It is a most complicated piece and took two months to complete. There were sixty pieces which, assembled, consisted of the cross as the central thought and worship is represented by angels, one of them bearing a lyre. Another angel bears a scroll on which is the legend, "Gloria in Excelsis Deo" (Glory to God in the Highest). The allegory is completed by kneeling figures, representing the church as a Shepherd and the standing ones, the Church Militant. It was executed in three colors by the Atlantic Terra Cotta Co. from designs, the result of the combined efforts of H. Siddons Mowbray and Adolph A. Weinman for the architects McKim, Mead and White.

The development of the architectural terra cotta business has been marvelous. In 1879 there was only one company producing it in this country. Today there are twenty-eight, with a total annual capacity estimated at 600,000 tons of finished product. The first plant started in 1879, with three small kilns. Today the successor to that plant, alone operates five large plants with thirty kilns at the largest one. The total number of kilns in the country today numbers 132, and all are being operated almost to full capacity.

Publicity has been largely responsible for putting architectural terra cotta in its present highly prosperous position among building materials. It has made itself a serious rival for reinforced concrete facades. Courage and persistency have been required in large measure because skeptics who were very doubtful had to be convinced. Early in the history of the industry there were failures. Tests made by architects apparently proved that the material was impractical, and this was difficult to overcome because the industry had not been perfected. There was not sufficient demand for it to make it worth while to develop it extensively. The demand first had to be created.

The skyscraper came first. That brought the necessity. As long as skyscraper construction continued the architectural terra cotta manufacturer was contented; but he soon saw that there must, of necessity, come a lull in this kind of construction.

In the meanwhile he has recruited a small army of ceramic experts. He brought ceramic chemists from the leading European universities, and erected plants equipped with expensive machinery. Something had to be done to keep his plant busy, and advertising was the only way by which it was accomplished.

Common and front brick are essential wherever terra cotta is extensively used. Would not this kind of an advertising campaign help common and front brick.

The development of building in the immediate future will be the result of seeking lighter construction. Clay product's bitterest rival is reinforced concrete, which is composed of elements representing the heaviest of materials. Cement, itself, weighs much heavier compared with other materials of the same bulk. Crushed stone and steel, used in building construction, add to this weight. This increases the cost of the bearing walls and steel supports. Thick walls rob the owner of rentable space and revenue.

The brick builder will, if he is wise, seek the solution of problems that architectural and construction economists are trying to solve now. He must perfect his brick by retaining in it the original strength, at the same time reducing its weight. Terra Cotta offers the solution of this problem for the facades, but what change will brick offer in the matter of reduced weight for the building of the future?

"The Belnord," the World's Largest Apartment Building, Faced with Brick, with Terra Cotta Trim from the Atlantic Terra Cotta Co., New York City.

Showing Use of Clay Plow and Clay Gatherer at Yards of Industrial Brick Co., Mt. Vernon, Ind.

## INDUSTRIAL BRICK CO.

Among the interesting dry press brick plants of the country is that of the Industrial Brick Co., located at Mt. Vernon, Ind. This concern started with a soft-mud plant in 1896 and changed to the dry-press process in 1907. This company manufactures a red building brick exclusively and is in operation nine months of the year. Its president is Jacob H. Behrick, who is also the manager of the place. Louis H. Kirk is secretary and treasurer.

The plant is conveniently located on the Louisville & Nashville Railroad and the property includes 20 acres of clay land. The buildings include a brick-press room 30 x 50 ft., a power house 30 x 18 ft., a clay shed 90 x 120 ft. and a stock shed 80 x 120 ft.

The material is a surface clay of red color found in a deposit 7 ft. in depth. It is easily dug, a Scott clay gatherer being used for the purpose. Three of these gatherers are used, each capable of securing from 80 to 100 loads of clay per day.

The clay is allowed to dry thoroughly before using, being stored for some time in a large clay shed. It is further prepared in a Scott mixer and passed through a Raymond screen.

The brick are moulded by an Andrus four-mould dry press, manufactured by the Scott Mfg. Co. of St. Louis.

For the burning of the product three down-draft kilns are used, each having a capacity of 300,000 brick. These kilns have ten furnaces on each side and coal is used for fuel.

## BUILDING MATERIAL EXHIBIT.

What is said to be the first "building material" exhibition held in this country will take place at Madison Square Garden, New York, N. Y., during the month of May next. It will be officially known as the National Building Material exhibition and will aim to cover the entire field of public and private building construction.

Plans for the exhibition have been carefully laid and the support of the most prominent architects, manufacturers of building materials, and the various mechanics and building trades associations have been enlisted.

The show is really the outgrowth of the Building Show which has been held annually in London for ten years. There will be shown at Madison Square Garden a great variety of imported appliances and accessories.

One of the features of the show will be the daily building and completion of an entire house. While this is in progress, an expert upon the fitting out with modern appliances of public and private buildings will lecture and give a practical demonstration of recent inventions and improvements.

## ROYAL BRICK MAKER.

Germany has long been noted for its successful manufacture of glazed tile. Emperor William, being fascinated by the industry, established a plant on his estate at Kadnien which has proved so markedly successful that the Emperor has found it necessary to have the plant enlarged.

# THE SOUTH'S OPPORTUNITY

## Progress of the Clay Industry South of Mason and Dixon's Line and Observations on Industrial Conditions by W. E. Dunwody, President of the Standard Brick Co., Macon, Ga.

This section of the United States known as the South has perhaps had greater prosperity in the last ten years than any part of the United States. People from all other parts of the country have their eyes on the South. And in 1911 it behooves those who are looking for real opportunities to grasp those that are in reach.

At the present time the South, and especially Georgia, should be proud of the vast steps made toward modern progress.

Great has been the difficulties experienced in the last few years, but Georgia has mastered them in true patriotic style.

And now with the new year, you should resolve to do more than you have ever done in your life, to be of greater use to your city and state than ever before.

It is said "life is a struggle—a struggle in which many are vanquished and few survive."

Out of a thousand buds that break forth in the dawn of a new year, only a few, a very few, become blossoms, and of the blossoms only a few become finished and perfect fruit.

Very few people realize the importance of knowing themselves. They have a faint idea about life and their connections with it, but their conception of its possibilities and the importance of developing these possibilities is so imperfect that if they were asked just what their aim in life is they would not be able to give an intelligent answer, though they be at the moment working away at a job, or filling a place of responsibility.

We are all winners, and working to get first or second prizes. Some of us are satisfied to come in about tenth and have a nice little home all paid for with a lawn that we can mow and sprinkle with our own hands.

The world is full of latent power lying everywhere, waiting for the observant eye to discover it. And the only eyes that have been observant eyes are those of men and women who have made a success of whatever they undertook. There are hundreds struggling to be winners and it requires hustling of some sort.

There are struggles round us every day, right here in Macon, Ga. Whatever you are, unfold your hands, use the opportunity afforded by your present position, and make good.

Make good as did Napoleon, in a hundred "impossible" situations. Make good, as all leaders of men, in war and in peace, have done by the use of opportunities at hand. Golden opportunitites are waiting for you.

Use the opportunity you have within your reach, and you will stretch out your hand and hold the Plus-entity—being what you have it in you to be.

### Southern Clay Statistics.

The growth of the clay industry in the South has been phenomenal and clay has become one of the important sources of our natural wealth. At the present time there are nearly 1,800 clay product enterprises in the states south of the "Mason and Dixon's line" from the Atlantic coast to the Arizona deserts, and the annual production of clay products of these states amounts to upwards of thirty million dollars, being more than one-seventh of the total clay production of the United States.

The state of Missouri which ranks seventh in importance among the clay producing states of the nation turns out clay products to the value of over six million dollars annually. West Virginia is next in importance in the clay industry of the South, producing clay products to the value of three and one-half million dollars annually. Kentucky and Texas are rivals for the third position, each of them producing about two and one-half million dollars worth of clay ware each year. The state of Georgia produces over two million dollars worth of clay goods annually, while Maryland, Tennessee, Virginia and Alabama are next in order, ranking about equal, each having a production of upwards of one and one-half million dollars yearly. Then in consecutive order of importance come the states of North Carolina, Mississippi, Louisiana, South Carolina, Arkansas, and Oklahoma, each having an annual production valued at from $500,000 to $1,000,000.

The clay products industry has grown very rapidly in the South, during the past few years, along with other lines of industrial progress. This growth has been not only in the number of plants, but in improving the character of products manufactured. While most of the clay production is, of course, common brick, yet in the higher classes of face brick, the South is beginning to show marked advancement. Alabama has become one of the most important producers of fire brick in the country, this resulting from the development of the great iron and steel industry of the Birmingham district. The manufacture of pottery of various kinds is an important feature of the industry in West Virginia and Kentucky. Progress has also been shown in the development of the other lines of clay products.

Many of the southern states are peculiarly fortunate in the high quality of their clays and much of our best pottery clay comes from Georgia and the adjacent states. In fact, many of the clay enterprises of that section are devoted exclusively to the mining and shipping of clays.

## PROGRESSIVE BIRMINGHAM PLANTS.

The Birmingham Leader gives the following excellent account of the clay industry in that locality:

"The progress made in the Birmingham district along the lines of the manufacture of clay products, paving and building brick and pipe during the past year is deserving of considerable note among the numerous developments that have characterized the year, 1910.

"This particular industry has made vast strides during the past few years and especially so in the past year. Nearly every concern manufacturing the product and its branches has made extensive improvements in plans and operations, and has widened its scope both in production and selling to the extent of making the industry a potent factor of the district. The Birmingham district can justly claim supremacy as one of the most important in the entire south as a brick and clay manufacturing center.

"Many features have distinguished the clay and brick industry during the year 1910. The recent consolidation of the Sibley Menge Brick Co. and the Sibley Brothers Coal Co. have formed an aggregate capital of $300,000 for the manufacture of pressed brick. Many improvements will be made in the plant of this company and the facilities greatly enlarged.

"The Copeland-Inglis Shale Brick Co., which owns one of the largest plants for the manufacture of paving brick, has also made extensive improvements and has laid plans for many more important changes during the coming year. Among the many improvements begun during the past year by this concern, is the construction of a mammoth kiln and storage sheds. The new kiln which is now under construction, will be a continuous one of about 500 feet, having no parallel in the entire southern territory and will be erected at a cost of approximately $40,000. A new 70-ton steam shovel has also been installed at a cost of $10,000 and other additions have been made at a cost of probably $50,000.

"The Copeland-Inglis Co. has also extended their selling capacity for paving brick for municipal thoroughfares in nearly every southern state, thus opening another avenue and a broad one for the brick industry in the Birmingham district. During the past year brick for paving purposes have been supplied by this concern to the cities of New Orleans, Jackson, Miss., Columbus, Ga., and many other prominent cities of the south.

"This concern has a complete plant, conceded to be the finest and best equipped of its kind in the south, which is absolutely fireproof and modern in every way.

"The Graves-Matthews Paving Brick Co. has made many improvements during the year and broadened out considerably. Likewise L. L. Stevenson, manufacturer of shale building brick, has made strides in developing its interests.

"The North Birmingham Fire Brick and Roofing Co., another branch of the industry, and the Southern Sewer Pipe Works have contributed their share to the development of the brick business in the district. In fact every manufacturer of brick and clay products has done much for the industrial progress of Birmingham and the business will be an important factor in the future history of Birmingham. The outlook for this year is most gratifying and much, it is expected, will be accomplished in this line during 1911."

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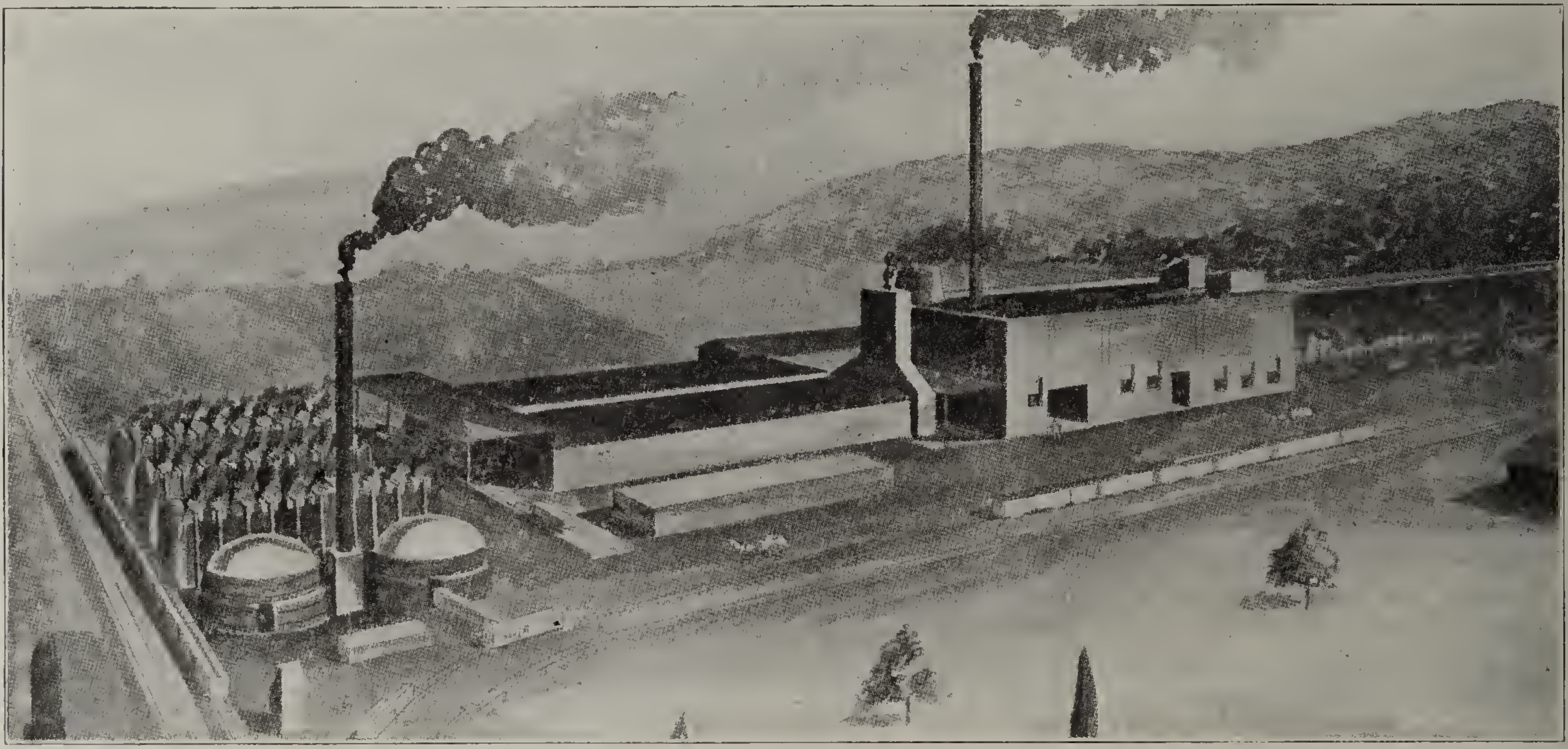
The Henry Matthews' brick business at Northampton, Mass., has been purchased by Chas. L. Sauter.

## THRIVING SOUTHERN PLANT.

The South is just beginning to awaken to her opportunities in manufacturing and commerce. With the development in the oil and gas industries the mooted question of fuel is settled, and as a result factories are springing up in all parts of the South.

The many buildings to be erected and streets to be paved have resulted in the establishment of many thriving clay plants to supply the growing need for these products.

Among the number none has been more prosperous than the plant of the Wilpicoba Brick & Clay Works at Ragland, Ala. The capacity is about 75,000 building brick and 50,000 vitrified paving brick per day. The firm states from the day they began shipments they have not been able to fill their orders. It is conceded that they make among the best building and paving brick in the South, made from a shale that is taken from the mountain, seen in the rear of the plant, and the quality of this shale could not be better. You will notice that they have a gravity haul from their shale pit to their mill and through their dry kiln on to where they are loaded in the railroad cars. For the next fifty years they will not have to go below the water level to get material for brick making. This same mountain that they get the shale from also has a seam of coal, which is mined and dumped at their boilers. It is the purpose of this company to add a plant for making a terra cotta pipe from this same material, which has been thoroughly tested and proved to be the best in the country, and burns with a natural glaze.



Splendid Plant of the Wilpicoba Clay Works at Ragland, Ala.

The plant is well equipped with machinery from the C. W. Raymond Co., the stiff-mud process being used, the drying being accomplished by steam.

This plant is unusually fortunate in having its coal supply for fuel and burning on its property.

Mr. C. H. Pittman is the manager and J. W. Freeman the superintendent of the plant.

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## WANTS MACHINERY CATALOGS.

The Trautwein Dryer & Engineering Co., 417 S. Dearborn St., Chicago, desires catalogs from clay-working, power plant and allied machinery companies.

# NORTH-WESTERN CLAY MEN MEET

## Publicity, Farm Drainage and Trade Schools Dominant Features of the Convention

One of the newest of the state organizations devoted to the clay interests is the North Western Clay Association, composed of representatives of clay product manufacturers of Minnesota and other northwestern states. While an infant in years, this association has already established its importance in the clay working world, and proved its value as a factor in promoting the welfare of its membership.

Convention Headquarters—Hotel Radisson, Faced with Buff Enamel Brick and Terra Cotta from the Hydraulic Press-Brick Co., Minneapolis.

The annual convention of the North Western Association was held during the second week of March at the Hotel Radisson in Minneapolis and was a well attended and very interesting gathering.

The program had been carefully prepared by Secretary Anderson and included many interesting features. One of the most pleasing features of the gathering was the banquet tendered on behalf of the Minneapolis Commercial Club, an act of courtesy that was greatly appreciated by the members of the association.

The officers elected for the coming year are as follows:

President, E. H. Cobb, Minneapolis.

Vice president, A. C. Ochs, Springfield, Minn.

Secretary, Axel Anderson, Minneapolis.

Treasurer, R. H. Hinkly, Luverne, Minn.

Executive committee, the officers, with Rufus P. Morton, of Brickton, Minn., and J. P. McLean, of Menominee, Wis.

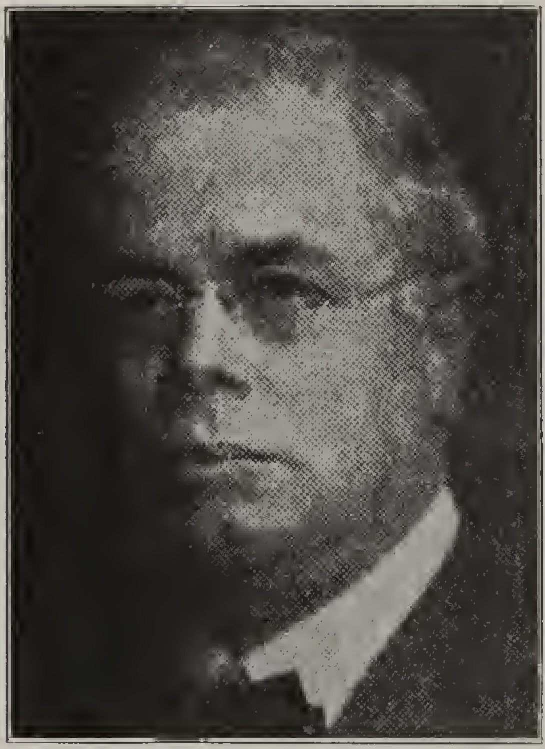
The opening session was devoted to preliminaries and officers' reports. President Corning presented no formal address, discussing business conditions in general.

Secretary Axel Anderson outlined the work of the association and its true aim for the production of better brick.

L. A. Boyce, treasurer, reported a fair balance on hand in the treasury.

There was some discussion as to the real question in the development of the brick business, it being stated that the great difficulty was to get brick well laid, owing to the scarcity of skilled labor.

A. R. Van Dyck, architect, Minneapolis, presented an interesting talk on the subject of the durability and artistic possibilities of brick. He referred to the possibilities of beauty in brick as shown in its use in old Italian cities, in Germany, Holland, and Spain, while in England elaborate carving is done on brick work of a fine texture that would scarcely be thought possible except with stone. He opposed the use of paint on brick, as destroying its character. The beauty of brick depends upon the maker, the mortar, the bricklayer and the man who designs the building. Much rests upon the ability of the bricklayer as to whether a wall will be satisfactory or not. The question of bond was alluded to as being of exceeding importance, and he urged that the bond be utilized openly, as adding to the character and dignity of the wall.



E. H. Cobb, Hydraulic Press-Brick Co., Minneapolis, Newly Elected President.

An interesting address was that of Dr. E. V. Robinson, of the University of Minnesota, on industrial education.

Prof. John R. Bell, of Huntingdon, Pa., spoke along the line of industrial education, declaring it to be better for teaching correct methods than the apprentice system. He praised the manual training schools, but deplored the lack of proper teachers. Prof. Bell showed a number of intricate designs of brick mantels which had been built by boys in his school, after training from six months to a year and a half, which aroused much interest.

### Question of Dues.

At the business session, the question of dues was discussed at length. The dues have been graduated on the basis of output, and it was thought that perhaps the question would be regarded as fairer if a flat rate were used. After extended debate, it was decided to make the dues for manufactures of 5,000,000 or less at $3 per annum, and $5 for all over that amount, while dealers and machinery men would pay $5, as before.

### The Second Day.

Geo. C. F. Vater, of Dayton, O., presented a valuable address on the subject of producer gas burning, telling in detail how the producer should be operated on bituminous coal to get the best results, and of the operation of the kiln through the different processes.

R. B. Hinkly, of Luverne, Minn., speaking of drain tile, stated that the first tile was laid in 1835, and the first tile machine was a horse-power machine, making 1 and 2-inch tile in horseshoe shape. The work had developed until tile drainage has become an important factor. He expects to see the use of tile in irrigated land for the reason that open ditches lose a great deal of their water through evaporation, and the alkali which exists in the soil is brought to the surface through the water standing upon it, causing trouble. The use of tile mellows the soil and makes it more capable of holding moisture, so that tiled land is better than untiled even in dry seasons. The profits from one acre of tiled land will equal those of two acres of untiled. He urged that the laying of tile be encouraged, but that it must be well done, laid out under competent engineers.

M. C. Madsen, of Hutchinson, Minn., declared that there is a great future for tile, and that much trouble comes from its not being laid properly. It must be laid out with system, and be well done. If it is not so done, it may prove to be unsatisfactory. He anticipated the time when there would be tile drain laid over all fields, at twenty to thirty feet apart.

There was considerable debate on methods of interesting farmers in tile drainage.

G. A. Welch, of the Minneapolis Improvement Bulletin, responded to the question whether it pays to advertise common brick in the newspapers, taking the position that it would, no doubt, pay if it were well done and developed in such a way as to suggest needs and uses of brick on the farm.

A. C. Ochs told of advertising some well brick, first giving a bare announcement, which brought in no returns, though continued several months. Then he began a campaign telling of the value of well brick, and the advertising in this manner brought in a good demand for the well brick. Mr. Ochs continued, telling of having made silo or curved brick eight years ago, although this subject has recently been exploited as a new thing but lately developed.

T. E. Sippers, with the Westinghouse Co., read a paper upon the economic distribution of power, suggesting that individual electric motors had many points in their favor as power equipment, saving the friction loss from belting or shafting, and enabling the operation of individual machines without having to operate the entire power plant.

### More on Trade Schools.

Prof. Bell spoke at length upon trade schools and how they might benefit brick manufacturers. He outlined in detail the trade school movement, and told of what had been done. The kingdom of Saxony, with less than four millions population, had thirty-nine industrial education schools. Prof. Bell declared that under first-class instruction it would be possible to produce skilled bricklayers with a training of a year to a year and a half. He stated that he would undertake to erect a brick building of considerable size with a crew made up wholly of graduates of the institution with which he is connected, and that they have built structures 60x175 ft., 14 ft. high. He declared that mechanics with such first-class training would be better than apprentices under their four-year training at the end of this time.

W. Siwart Smit, of St. Paul, took up the question of publicity and the use of brick, outlining some of the work done by the Building Brick Association of America in sending advertising to consumers showing the possibilities of brick dwelling construction and the goodly number of responses received. He told of the series of booklets issued by the association, some of them comparing the cost of brick, frame and cement construction, giving figures secured by having a set of plans figured on the different materials in a Massachusetts town, showing the slight increase of the cost of brick over frame. Brick veneered, solid brick, stucco on frame and other combinations were figured, and the increased cost for a 10-inch hollow brick wall was but 6.5 per cent, a 12-inch wall, solid, 10.7; brick veneered on hollow block, 7.7; brick veneer on boarding, 4.4. He suggested the formation of a local publicity bureau to urge the use of brick, working in conjunction with the national association.

President-elect Cobb was called upon for remarks, and expressed his appreciation of the election, adding that there is a bright future for the industry, and that all hands must work to develop it.

The resolutions committee offered a set of resolutions. That touching upon erecting a model brick dwelling at the state fair grounds aroused much discussion as to how it should be decided whose brick to use, and whether there might not be discord over the selection. The resolution was tabled.

The new president was authorized to appoint the committees on finance and on industrial education.

The question box brought forth a discussion of the comparative costs of up-draft and down-draft kilns.

Among the resolutions adopted were the following:

Resolved by the Northwestern Clay Association, That we endorse the work of the Building Brick Association of America in its campaign to present "brick" to the building public of America, and we urge upon our members and brick manufacturers everywhere, to co-operate with the work of this organization, and to plan their individual advertising to reinforce the work of this body, to the end of each assisting the other.

Resolved, That this association urge upon school and educational authorities the necessity of revising the school courses to the end of offering a better opportunity for training children toward the development of whatever their native inclination may be, and that we urge the improvement of manual training, and its extension along such lines as may lead to the development of skilled mechanics. We urge the legislature of Minnesota to appropriate funds for a school of trades, including bricklaying, at the state agricultural college as a model for the school districts of the state.

### The Banquet.

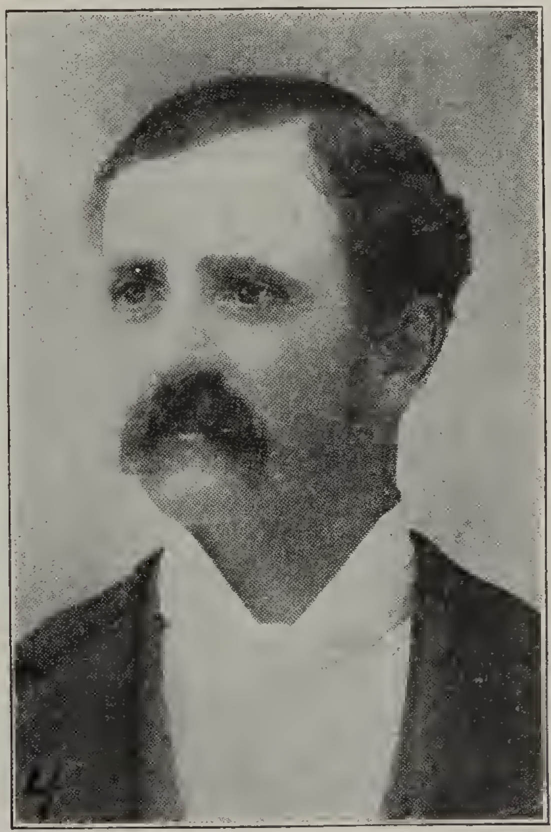
A splendid banquet was tendered on behalf of the Commercial Club, which was much enjoyed and deeply appreciated. President Corning was toastmaster, and introduced Mayor Haynes with a sly reference to his being interested in brickmaking along with other things—being a shot at the workhouse brick plant. Mayor Haynes responded with an outline of how the plant came to be established and what it was accomplishing in the way of furnishing an occupation for the prisoners.

Building Inspector James G. Houghton, of Minneapolis, responded to the subject of "Building a Permanent City." He opened by a statement that a year ago he had stated to the association that hollow and common brick and the methods of delivery in the city were poorer than they had been in previous years, but much improvement had been noted the past year. He told what the city had done in the construction of paving, sewers, curbing and water mains, having permanent improvements costing $26,000,000. He urged the association to do educational work for fireproof construction, and to teach that by fireproof construction it will be feasible to carry a large part of insurance risk by the owners.

H. B. Wakefield, of the Daily News, Minneapolis, responded to "The Value of Publicity in Building Up an Industry." Mr. Wakefield was very happy in his presenta-

Axel Anderson, Minneapolis, Secretary of the Association.

Retiring President Corning.



Ira C. Jones, Chairman of Arrangements Committee.

tion of the case, declaring that brick manufacturers had neglected their opportunities for spreading interest and knowledge in their wares, and of the facts about an industry which represents a quarter of a billion dollars in its totals.

Prof. Samuel Weidman, of the University of Wisconsin, Madison, spoke on the subject of "A Brick House Display for State Fairs." Prof. Weidman outlined the advantage which such a structure would be, as a standing illustration to the visitors of state fairs, showing a complete structure of clay wares, to cost from $2,500 to $4,000.

Senator C. J. Swanson, of Fridley, answered to the question of "Legislation and Trade Schools." Senator Swanson's view was that too much might be expected of trade schools, and that the practical training of actual work must supplement the school training to make the finished workman.

W. Siwart Smit, of St. Paul, speaking on the value of publicity to the clay-worker, spoke of the remarkable force of publicity as being one which brickmakers had ignored as non-existent, and they have been paying attention to the question of supply, but not to demand. It would take 100 years to establish the need of fireproof buildings, but publicity could hasten the demand rapidly. The work of the Building Brick Association of America was outlined and their methods explained.

Chas. S. Allbright, deputy labor commissioner, spoke of the relation of labor and education, outlining the work of compulsory education and of steps against child labor, and asking the members to remember that their work was such that very young boys should not be employed in the yards.

The entire meeting was of a beneficial and educational character and all who attended expressed themselves as well repaid for the time and effort spent in attending.

## GRANITE BRICK COMPANY.

This new plant is located at Munster about three miles from Columbia, South Carolina. When completed the daily capacity will be about 300,000 brick per day.

The lands surrounding the plant are underlaid with a practically inexhaustible supply of shale, also a quantity of superior red clay, suitable for the manufacture of building brick, a bed of clay adapted to the manufacture of model buff brick, also material for paving block.

The company expect to be making several varieties of brick and paving block some time in April.

Mr. P. H. Hyatt is president and treasurer; E. H. Titus, vice-president; D. W. Robinson, secretary, and Mr. M. Dempsey, superintendent.

## A HISTORIC RELIC.

There is in Louisville, Ky., a brick residence which has stood the ravages of time intact for at least a century, having been erected in 1810. At the time this building was erected, Louisville was a village, and the structure, was the only brick building which had thus far been erected, and was justly termed a mansion. Today this structure still defies time, and is occupied as a residence by Mr. J. C. Baumberger and his family, who purchased the same about twenty-two years ago.

As the illustration shows the style of architecture and the general appearance of the building is one of more than ordinary attractiveness for the period in which it was builded. In those days few, if any, brick were manufactured in Louisville, and the brick with which the building was constructed were brought down the river from Virginia by John Gwathney, the owner, builder and designer of the structure.

The structure contains nineteen apartments, there being three floors, basement, first and second story. The ceilings are moderately high and some of the rooms are 22x24 feet in size. The walls are very thick, and the foundation is of brick, as are also the dividing walls throughout the house, making the building of more than ordinary strength. The brick as well as the masonry, are well preserved, the Flemish bond having been used in the construction of the house. The interior is finished in hand cut oak, of very pleasing and substantial appearance. The floors also are of oak, and well preserved. There is no sign of disintergration in any part of the building, and there is every reason for the belief that it will remain intact for many years to come.

Another point of interest about this historic residence is the fact that it stands on one of the two mounds found in Louisville, relics of the Mound Builders, of an unknown age and race. It is located on Sixth street, just north of Walnut street, in what is now the heart of the city. When it was erected it was surrounded by woods and a large pond stood south of it, which was at that period a pleasure resort for the many visitors who came to partake of the hospitality of the owner. Many relics have been found on the ground, such as flint arrow heads, axes, pottery and human bones.

First Brick House Built in Louisville Over 100 Years Ago Shows Little Sign of Age.

This structure is one of the show places of Louisville, and of particular interest to brick manufacturers and builders, on account of its superior construction. There have been rumors to the effect that the property will be purchased by the city, in order to preserve it as a historical relic for the coming generations. It is not known what the building originally cost, but without doubt it was put up at considerable expense on account of the quality of the material, and the magnificent type of construction, which has so long endured the battle of the elements, and has so wonderfully withstood the ravages of time. No doubt if the walls could talk many tales of interest would be unfolded of "days of old" when the South was noted for its elaborate and hospitable entertainments. One can well imagine the many balls and fetes, held in this old mansion and that oft' "there was a sound of revelry by night, when bright lights shone over fair women and brave men."

# NORTHWESTERN BRICK CO.

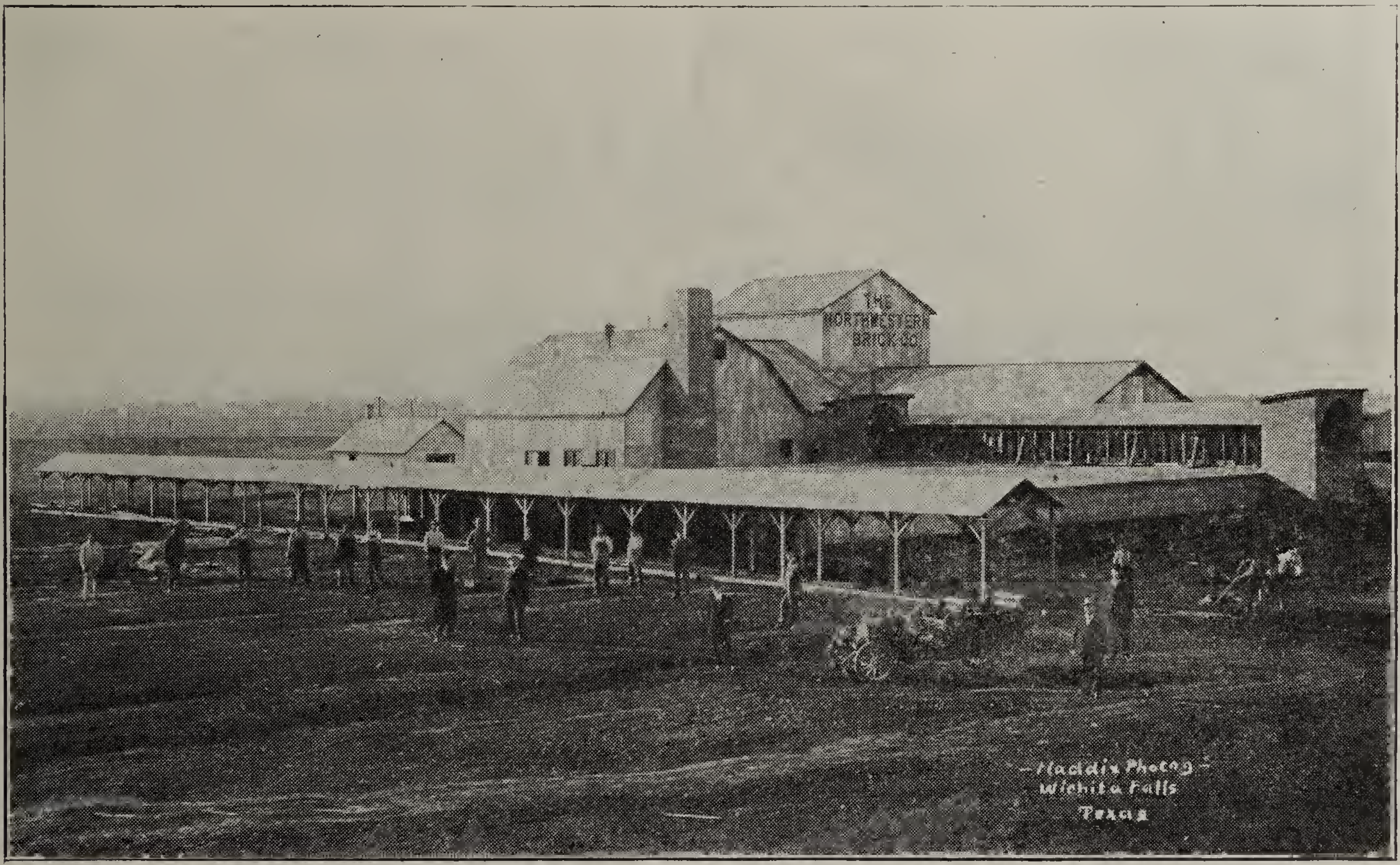
On the north side of the Wichita River at Wichita Falls, Tex., is located the splendid new plant of the Northwestern Brick Co., which began operations February 14th. This plant is one of the most complete and up-to-date in the country, and has been constructed throughout with a view to permanency and with the idea of obtaining the best results. Every piece of machinery is of the latest and most approved make. The foundations and structural work is all of the best material and installed with due regard for durability and safety. The site was graded at a heavy expense which will later result in the saving of time and lobor.

The city provided the site and a cash bonus of $2,000, and the capital stock is owned by representative citizens of Wichita Falls.

All machinery is set up and installed on a solid concrete foundation and structural frames, the steel frame taking care of the disintegrator and granulator with winding drum.

### How Clay is Worked.

The clay is taken from the pit by the use of a Thew Automatic steam shovel, with a capacity of 400 yds. per day of ten hours, loaded into steel dump cars of two-yd. capacity and taken up the incline to the top of the building by means of a friction hoist. It is then dumped into a large granulator, feeding down through the disintegrator into the pug mill, where it is tempered with water, and after being thoroughly pugged, passes into the giant auger. It then passes through the machine to the automatic cutter which cuts from 100,000 to 150,000 brick per day of ten hours.



New Plant of the North Western Brick Company, Wichita Falls, Texas, Showing Immense Drying Sheds.

The forty acres of land on which the plant was erected is underlaid with clay 20 to 25 ft. in depth, adapted to the making of brick and tile, and in quantities sufficient to last 25 to 30 years.

The entire plant is equipped with the most modern clay-working machinery made by the American Clay Manufacturing Company, Bucyrus, Ohio, installed under the direction of Wm. H. Merkel, construction engineer, who was present when the machinery was started to see that it was properly adjusted.

The engine room, 48x50 ft., is equipped with a 400-h. p. Corliss engine of the Wright pattern, and a battery of boilers 72x80 ft., capable of developing sufficient power for the engine. The power house is equipped with boiler feed pumps, a Cochran water heater, and is complete in every detail, having a cement floor and being fire proof.

The machinery building, which is constructed of corrugated iron, is large and roomy, being 35x110 ft. The line shaft is mounted on heavy substantial concrete piers, with a line shaft and pillar rock bearings which are of a heavy pattern, capable of handling the heavy duty in the manufacture of clay products.

The brick are then hacked upon steel cars, each car holding 650 brick. The loaded cars are transferred from the machine to the drier. This dry house, which is constructed of brick and concrete, is absolutely fireproof, having 22 tunnels, each tunnel holding 15 cars and each car holding 650 brick.

The drier is equipped with direct heat, and circulation is controlled throughout the tunnels by the use of two 9-ft. exhaust fans.

After the brick are thoroughly dried they are set in the kilns, where they are burned, gas being the fuel used. They are then ready for market and loaded upon railroad cars ready for shipment.

The company has 250 ft. of transfer tracks, which with other trackage and the private railroad spur constructed to the property, gives a total trackage of about two miles, with access to the Wichita Falls & Northwestern, Fort Worth & Denver and Wichita Falls & Southern railways.

Natural gas will be used throughout the plant, under the boilers, in the drying house and the kilns, and it is estimated that a total of 1,500,000 cu. ft. per day will be consumed, representing an expense of approximately $100 per day for fuel alone.

The product will be face and building brick at $12 and $7.50 per M. respectively at kiln.

The kiln capacity at present is 8 up-draft kilns 32x80 ft., holding 360,000 brick each.

The board of directors are O. A. Kentner, J. A. Kemp, Dr. J. B. Paul, A. H. Carrigan, T. C. Thatcher, Dr. J. F. Reed and J. T. Montgomery. The officers: O. A. Kentner, president and general manager; J. A. Kemp, vice president; C. B Woods, secretary; T. C. Thatcher, treasurer.

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## GET WISE ON ELECTRICITY.

The enterprising clay products manufacturer who observes the "signs of the times" must come to the conclusion that electricity will soon play a very important part in the manufacture of clay products. There are so many unquestionable advantages to be secured through electric drive, to say nothing of the radical economies to be accomplished, that no one who has given the matter careful study can doubt the advantages to the clay products manufacturer through the adoption of this improved method of securing motor power.

The live clay worker will do well to ask the Westinghouse Electric & Manufacturing Co., of Pittsburg, Pa., for a copy of their recent booklet entitled "Electrically Operated Clay Working Plants," a pamphlet which not only gives some valuable data on the subject of electric drive, but which also gives illustrated descriptions of clay working plants in which electricity is now being successfully used.

The following interesting extract is taken from the booklet:

In most brick plants the practice has been to drive all of the machines at a constant speed and obtain any desired variation in output by varying the rate of feed of raw material. In some of the new installations which have an output per machine of from 100,000 to 150,000 brick per day it has been deemed advisable to use a speed variation on the auger and pug mills of about 50 per cent. It is claimed that by being able to speed up the machines an increased production can be obtained and also that when manufacturing a small amount of brick the low speed is desirable.

The power supply from central stations is in most cases alternating, either 60 or 25 cycles so that induction motors only may be used directly upon the circuit. Induction motors are essentially constant speed motors and are not well adapted to work requiring speed adjustment and constant speed at each setting. The direct-current motor only possesses these characteristics so if the pug mill and auger require speed adjustment, direct current motors must be used.

With the availability of central station service and the numerous advantages of the induction motor over the direct current motor for dirty and severe service it is usually found that the advantages of a complete induction motor drive considerably over-balance the advantages gained by adjustable speed. But in case central station service is not available and a private plant is to be installed it is found that there is little difference in the cost of installation of the two systems and with a well designed plant and good supervision there should not be a great difference in the maintenance, although the direct-current system will always require more inspection.

If motors are geared or belted to any of the large machines without the use of friction clutches they should be designed for a high starting torque since when starting any of these machines full of clay a very large torque is required. Either induction or direct-current motors may be designed to meet these requirements. If friction clutches are used the motors may be started light and the load thrown on later, but this introduces another piece of apparatus subject to wear and trouble and should be avoided where possible.

In plants generating their own power the generator may often have a less capacity than the total connected motor rating and the auger motor may form a large percentage of the total load. In cases like this the starting of the auger under load may seriously effect the generator regulation and the use of a friction clutch for starting and stopping the machine is to be recommended. The clutch is not to protect the motor but to prevent a too great or sudden shock upon the power supply.

The direct-connected motor drive makes the most compact and efficient layout, but care must be taken to see that none of the laws of mechanics are violated; that is, that the foundations are solid, that gears are not run at too high speed, that they are well supported in bearings and rigid, and that the motor is not subjected to severe vibrations. The motors are not injured by the clay and dust, and if the mechanical application is well made a satisfactory drive is assured.

In order to give a more concrete idea of the particulars of motor drive in this industry, a detailed description of a modern motor-driven building-brick plant will be given.

The plant consists of six permanent kilns and electrically driven back machinery with a capacity of 60,000 brick per day. They are employed 26 men working 10 hours per day. Owing to the limited capacity of the kilns, the pans and pug mills are operated approximately 8 hours per day and the average daily output is 28,000 brick.

Squirrel cage induction motors, 2-phase, 220 volts, 60 cycles, are employed for the entire operation of the plant. The total capacity is 215 h. p.; the maximum demand is 130 h. p. and the annual factor for the 10-hour day is 24% and for the 24-hour day is 10%.

The average total electric energy consumption per 1,000 brick is 26.4 kw.-hr.

The shale is obtained from a bank a short distance from the yard and carried to a belt conveyor by wheel barrows. From this point all of the brick making processes are operated by motors, the handling of the brick being practically the only exception.

During the cooling periods the air is drawn from the kilns containing the burned brick and passed through the drying tunnels containing the green brick. When it is desired to move the dried brick, the draft of hot air is shut off, and the air in the tunnels cooled by means of an exhaust fan.

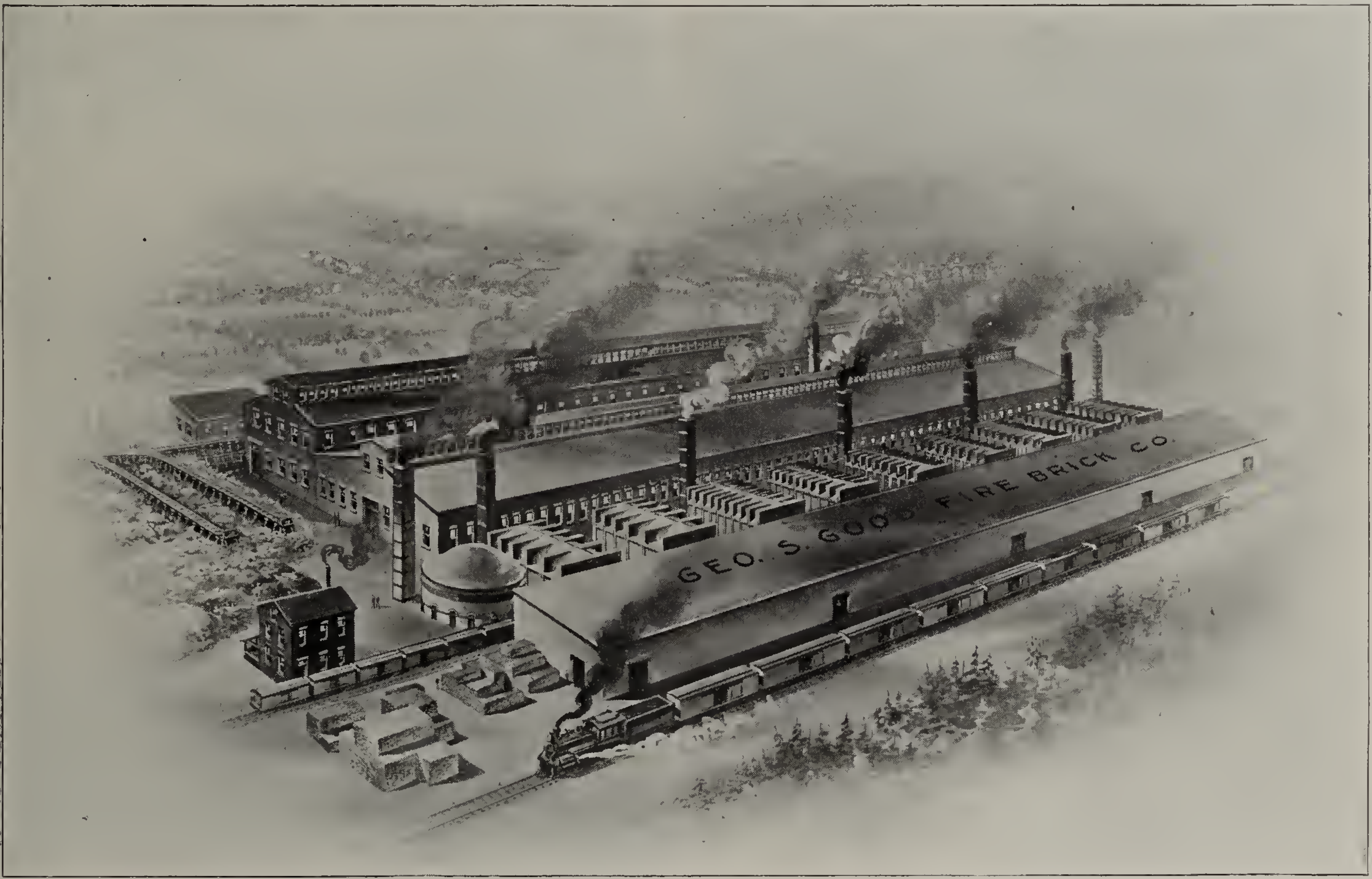
| | Motors | | |
|---|---|---|---|
| No. | H.P. | R.P.M. | Application |
| 1 | 40 | 840 | Geared to a 9-ft. dry pan and belted from extension shaft of dry pan to a 40-ft. bucket conveyor. |
| 1 | 40 | 840 | Geared to a 9-ft. dry pan and belted from extension shaft of dry pan to a 40-ft. bucket conveyor and a 50-ft. by 24 in. belt conveyor. |
| 1 | 40 | 840 | Geared to a No. 51 pug mill. |
| 1 | 15 | 1120 | Belted through countershaft to a 140-in. blower. Speed 216 r.p.m. (Supplying draught for ovens). |
| 1 | 5 | 1700 | Belted to a 72-in. disc fan. |
| 1 | 75 | 685 | Geared to a No. 1 Giant brick auger (capacity 6,000 per hour). From the countershaft of the brick auger is belted a 30-ft. shaft (four hangers) which drives an 18-brick automatic cutter (three belt conveyors, 6-ft., 25-ft. and 50-ft., respectively), and a 10-ft. bucket conveyor and repress." |

# GOOD FIRE BRICK CO.

## One of the Leaders in Fire Brick Industry, Clearfield County, Pa.

In Clearfield County, Pennsylvania, is found a grade of fire clay for the manufacture of fire brick that has made a reputation which heads the quality roll in that product.

For many years the superiority of the Clearfield County Fire Brick has been unquestioned, and in looking for the best, the George S. Good Fire Brick Company, after thoroughly testing the clay in other parts of the county located their plant in the borough of Lumber City, and control, in the adjacent properties, about one thousand acres of clay lands, on which the mines have been opened, and the quality of the manufactured brick has met with such favor in the market as to confirm absolutely the unsurpassed quality of the Lumber City clays.


GEO. S. GOOD FIRE BRICK CO.

A Bird's-Eye View of the Extensive Work of the Geo. S. Good Fire Brick Company, Lumber City, Pa.

Ground was broken for the new plant in April, 1907, and just one year later the manufacture of brick was begun and since that date the plant has operated every day except holidays, such as the workmen insisted upon observing, and with a constantly increasing demand for the product, additional equipment is now being installed and it is hoped to bring about a daily output of from 80 to 100 M fire brick during the present year.

The general appearance and lay-out of the plant is well shown in the accompanying cut, but it is impossible, of course, to bring out in a photograph the details of construction and arrangement which makes this one of the model manufacturing establishments of the country.

The buildings are absolutely fire proof throughout, built of brick, with steel trusses and asbestos-slag roof with concrete floors, there is scarcely a pound of inflammable material on the property. The main building is 160 ft. wide and 300 ft. long and the stock shed nearly 400 ft. long and 50 ft. wide.

The siding is depressed with a stone wharf on both sides, extending about four feet above the track to the run-ways and is located between the kilns and the stock shed, making it most convenient for loading.

The power room is "a thing of beauty," being of ample size and thoroughly ventilated, with plenty of light from all sides. It is ornamented with a battery of three boilers, the largest being a 350-h. p. water-tube boiler, a monster Watts-Campbell corliss engine of 650-h. p., a Taylor Beck 10 in. x 12 in. engine running the 500-light electric generators, two 8 in. x 12 in. engines directly connected to two ¾ housed Rodgers 10-ft. fans used for induced draft on boilers and kilns; the fan connected with the kilns also utilizes the waste heat from cooling kilns drawing the hot air through six-inch horseshoe drain tile under the concrete floor which make a very profitable auxiliary to the heating of the floors with exhaust and live steam, the floors being underlaid also with pipe for heating by steam.

The power room also contains an 800-h.p. water heater, a deep well pumping engine, working at a depth of over 100 ft., an 8x6x8 Worthington pump, a boiler feed pump, and an air compressor of the Westinghouse type used for furnishing power to a displacement pump located in a 20,000 gallon well, on the banks of the Susquehanna river, which pump has a capacity of nearly 1,000,000 gallons of water every 24 hours, and is connected by a four-inch cast iron pipe line with a reservoir on the adjoining hill, where a supply of water is stored for any emergency that may arise.

The plant and dwelling houses are protected by fire plugs placed at convenient points, and an adequate supply of fire hose to reach any part of the property, the pressure being about 100 pounds. The grinding pans are of well known heavy Clearfield type, two for wet tempering and one dry pan.

The clay is dumped as it comes from the mines into a No. 5 Champion crusher, from which a monster bucket elevator carries it at the rate of 30 tons per hour to a height of about 25 feet into compartment bins, from which the crushed clay is fed by gravity into the charging car, which is adapted to any change that may be necessary for the varying proportions of hard, calcined and bonding clays for the different brands of brick manufactured.

Engine Room Showing Deep Well, Pumping Engine in Foreground and 500 Electric Light Plant Back of Piers.

A. Rodger's 20-ft. Fan in Use at the Geo. S. Good Fire Brick Co.'s Plant.

The wet pans are emptied with a special lever shovel onto the molders' table, from which two molders work, with four offbearers to carry the molded brick out on the hot floor from which they are taken, after about three hours drying, and hand pressed. The plant is also equipped with a pug mill and brick machine for making the cheaper mill fire brick, the daily capacity of this machine made brick being 30,000 per day.

When the brick are thoroughly dried after a couple of days on the drying floors, they are set in the kilns, which are of the down draft type, and both round and rectangular in shape, having an average capacity of sixty-five to seventy thousand nine and ten-inch shapes.

The larger shapes are made by special molders, and are not pressed but finished up by the shape molder and remain on the floor until, through a process of slow drying, they are ready to be set into the kilns.

The relation of the kilns, siding, stock sheds, etc., to the factory, are such that every move of the material from the time it enters the crusher is in the same direction and with a slight descending grade always in favor of the loaded barrows, etc.

The blacksmith, carpenter and pattern shop are located in a separate two-story building, built of building blocks and brick and is 30x100 ft. and is very roomy and complete in every detail.

Some fifteen or more tenement houses have been built to provide for the workmen who could not be accommodated in the town, and most of these are of good substantial brick construction and supplied with good pure spring water from a reservoir built for that purpose. They are also supplied with electric light from the plant and make very comfortable homes for a number of the employes.

The plant, including kilns, stock sheds, loading wharfs, work shops, stables, etc., are all thoroughly lighted so that work is carried on with equal facility during the night and day, and the three shifts or turns utilize nearly every minute of the twenty-four hours.

The finished brick as it goes to the car, or to the sheds, is perfect as to manufacture and the increasing demand conclusively proves that the quality meets the most exacting service, as numbered among the regular customers are a number of the largest users of fire brick in iron and steel trade, foundries, cement mills, glass factories, etc.

They also enjoy a very large business with brick and sewer pipe manufacturers and have a number of special shapes for kiln construction that will appeal to every brick manufacturer.

A catalogue illustrating all standard stock brick and shapes has recently been issued and contains much useful data; it is neatly bound in red leather and of a size convenient for the desk or the pocket and can be had by application to the general office of the company at Patton, Pa.

Drying Floor Showing Shape Molding in the Foreground, Molders and Off-bearers Working from the Pan.

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It is reported that the Buckeye Fire Brick Company at Scioto Furnace, near Portsmouth, O., is planning a new addition to its plant. The company is cramped for floor space and a new dry house 50 by 150 feet will likely be erected.

# EFFLORESCENCE ON BRICK WORK*

## By A. F. Greaves-Walker

**Composition of Efflorescence.**—Wherever brick are used for building purposes, brick walls will be noted which are covered or partially covered with a film or scum. This scum is generally white but may be yellow or green. It appears at its worst on red brick walls, but may be seen more or less plainly on brick of any color. When the walls are new it appears as white blotches at various places. Later it may come out all over the building, giving the brick work a faded or dirty appearance. In a few years a red brick building so affected will take on a faded pink appearance which will stay with it forever.

The scum is simply a film of soluble salts carried from the interior of the brick to the surface by the water which they absorb, and left there after it evaporates. The scumming is always worst near the eaves and downspouts, and under the window-sills and water table. This is caused by leakage of rainwater between the roof and trough and from the downspouts, and through the catching of the water by the sills and water table which consequently soaks into the brick beneath.

The scum is generally composed of sulphates, although it may be composed of any other soluble salt. Chlorides are found in seacoast clays and alkalies in clays of the western arid region. In the clays of this country, the scum when present in the most minute quantities. As (1) $CaSO_4$ calcium sulphate; (2) $MgSO_4$, magnesium sulphate; (3) $K_2SO_4$, potassium sulphate; (4) $Na_2SO_4$, sodium sulphate; (5) $FeSO_4$ ferrous sulphate; (6) $Al_2\ (SO_4)_3$, aluminum sulphate.

Often all of these occur in a single clay, especially if it has been weathered and subjected to the attack of decomposing pyritiferous minerals.

**Causes.**—All of the above salts are very soluble except calcium sulphate, which is soluble 1:400. But this is great enough to completely ruin face brick in which it occurs, as the surface is small in comparison with the weight. This particular salt, in fact, is probably responsible for half the ruined walls in this country. The sulphates of soda, potash, and magnesia will often cause scum when present in the most minute quantities. As little as 0.01%. of any one of these salts has been known to ruin face brick.

There are four ways in which salts are incorporated into the brick: (1) soluble salts in the clays or other materials used; (2) soluble salts in the water used for tempering the clay; (3) soluble salts formed in kilns by oxidation of minerals in clay, or by reaction of sulphurous kiln gases on clay; (4) soluble salts introduced into brick after burning, principally from mortar.

A great majority of clays contains soluble salts, some large quantities, others but a trace. Surface clays are more likely to have a high content than the older deposits. Trouble is encountered in all parts of the world from this source, and probably 75% of the scumming comes from this cause.

Often materials are mixed with clays that carry soluble salts into them. Examples of this are the brick made around London, England, in which ashes are used to reduce shrinkage, and brick made along the Hudson in which coal slack is used to aid in burning. In both of these cases the soluble salts in coal add to, if they do not entirely produce, the scum.

In the clays that vitrify, scumming can be overcome by burning them to a vitrified body, in which case the salts form silicates and become harmless.

The water used for mixing and tempering mud brick often contains soluble salts. This, of course, produces the same effect as if the clays contained them. Many good clays are injured in this way.

The formation of soluble sulphates in the kiln is a very common trouble. It is often encountered with clays that contain practically no troublesome ingredients before being fired. In many cases there is really no excuse for trouble at this stage. It is simply a case of ignorance on the part of the brickmaker or poorly designed kilns and stacks. When a kiln is set and the heating-up process is started, the ware contains considerable moisture. If good judgment is used and the fires are kept at such a stage that only so much of the moisture is being driven off as the sluggish draft of a cool stack will carry off, trouble is not likely to occur; but if the moisture is driven off more rapidly than the stack can handle it, it is precipitated on the ware again, when it absorbs sulphur from the gases and forms sulphuric acid. This acid attacks the carbonates and other less soluble salts and forms soluble sulphates.

There is no doubt that considerable trouble is caused by the mortar in which the brick are laid. Poorly mixed mortar is dissolved by the rain water and the salts carried into the brick, only to be brought to the surface later. It is therefore always important to take great care with the mortar.

**Methods of Overcoming Scum.**—Many methods are employed to overcome or prevent scum. It is possible to do this in nearly every case, but is often impracticable on account of the low selling price of the ware. Where facing brick or other wares are made by the wet process, or where the ware is vitrified there is practically no excuse for trouble.

The preliminary treatment is the principal method of overcoming or preventing scum. This is done by treating the clay or treating the water used.

**Treating the Clay.**—Clays that contain soluble salts can be washed before using and the salts leached out. This may be done by treating piles of clay, after mining, with water and then allowing them to dry. This method is only possible where high-priced ware is made. Clays are often allowed to stand in piles for from six months to a year, in which case the rain and snow do the same thing.

In many clays the above methods will only cause the trouble. This would be the case where a clay did not contain soluble salts originally, but upon exposure to the weather insoluble salts were converted into soluble salts. This would be the case with pyritiferous clays.

Chemical treatment is very often resorted to. This is accomplished in clays made up by the wet process, by adding, to the water used, such chemicals as will precipitate the soluble salts and form harmless by-products, such as barium sulphate. Barium salts are the favorites with which to accomplish this reaction, but others can be

(Continued on Page 373)

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*From a paper in the "Journal of Industrial and Engineering Chemistry" of the American Chemical Society, Sept., 1910.

†Salt Lake City.

BRICK AND CLAY RECORD

Vol. XXXVIII. APRIL 1, 1911 No. 7

## EDITORIAL NOTES.

While this is the time of year that manufacturers are devoting their thoughts to the betterment of their plants and the placing of yards in operation and while the manufacturing end of the business should have the most careful attention, yet the makers of brick and tile should not altogether forget the selling end of the business. Many a yard has made a successful season's run which should have resulted profitably to the owner, but has been handicapped at the end of the year by an unwarranted over stock through failure to dispose of the product. Neither brick nor tile can be depended upon to sell itself without effort on the part of the manufacturer. In other lines of business enterprise the selling is considered fully as important as the manufacturing, but in the clay industry unfortunately many well equipped plants have proven unprofitable because of the failure to follow enterprising methods in the sale of the product.

Now that in most sections of the country, yards are about to start for the season's run it would be well for the clay men to plan for the adoption of more accurate methods of cost keeping. It is a simple matter to provide such records as will enable the manufacturer to know exactly what his products are costing him. The advantages of such records are not only in their value as a guide in the regulation of operations and expenditures, but they also form a certain check upon unwarranted leaks and losses. Cost records can be put down as the best kind of insurance.

### OPPORTUNITY.

It is not that some men have better opportunities than others, but that they see the possibilities where others have passed by unheeding for ages.

There is no more electricity in the universe today than there was a million years ago. It only needed a genius, such as Edison, to develop means for using this great power.

The ability to see the future superintendent of the plant in the alert, eager-eyed boy applying for the position of water-boy, is only one of the many possibilities overlooked by the man who complains that he can never get a satisfactory superintendent.

The wise manager trains his superintendents, without the candidate's knowledge, who is more than surprised when he is asked to take the place of the superintendent who left "without warning." So thoroughly grounded has be been trained in the workings of each department, however, that he finds little difficulty in telling others, what he knows so well can be done in a certain way, in a given length of time.

The wideawake manager is not caught napping, and keeps "subs" in training for every important department, ready to "go up head" at a moment's notice.

### RECORD-BREAKING INCREASE.

We have always been proud of our extensive circulation among the clay working fraternity, but we have been agreeably surprised the past two months at the gratifying increase in our subscription lists (receiving as high as fifty-five subscriptions in one mail), which, with the former subscribers to BRICK AND CLAY RECORD, places our subscription list far ahead of any other similar publication.

We are still not content, however, so long as there is "one outside the fold," and certainly no clay manufacturer or worker can afford to be without so valuable a journal. We will gladly send sample copies to any one on receipt of request.

### SOLID FAMILY.

This Ad appeared in a leading "Daily."

"Wanted. A six room for a small family of brick."

**You Look Like**

**THE ADVANCE AGENT OF PROSPERITY**

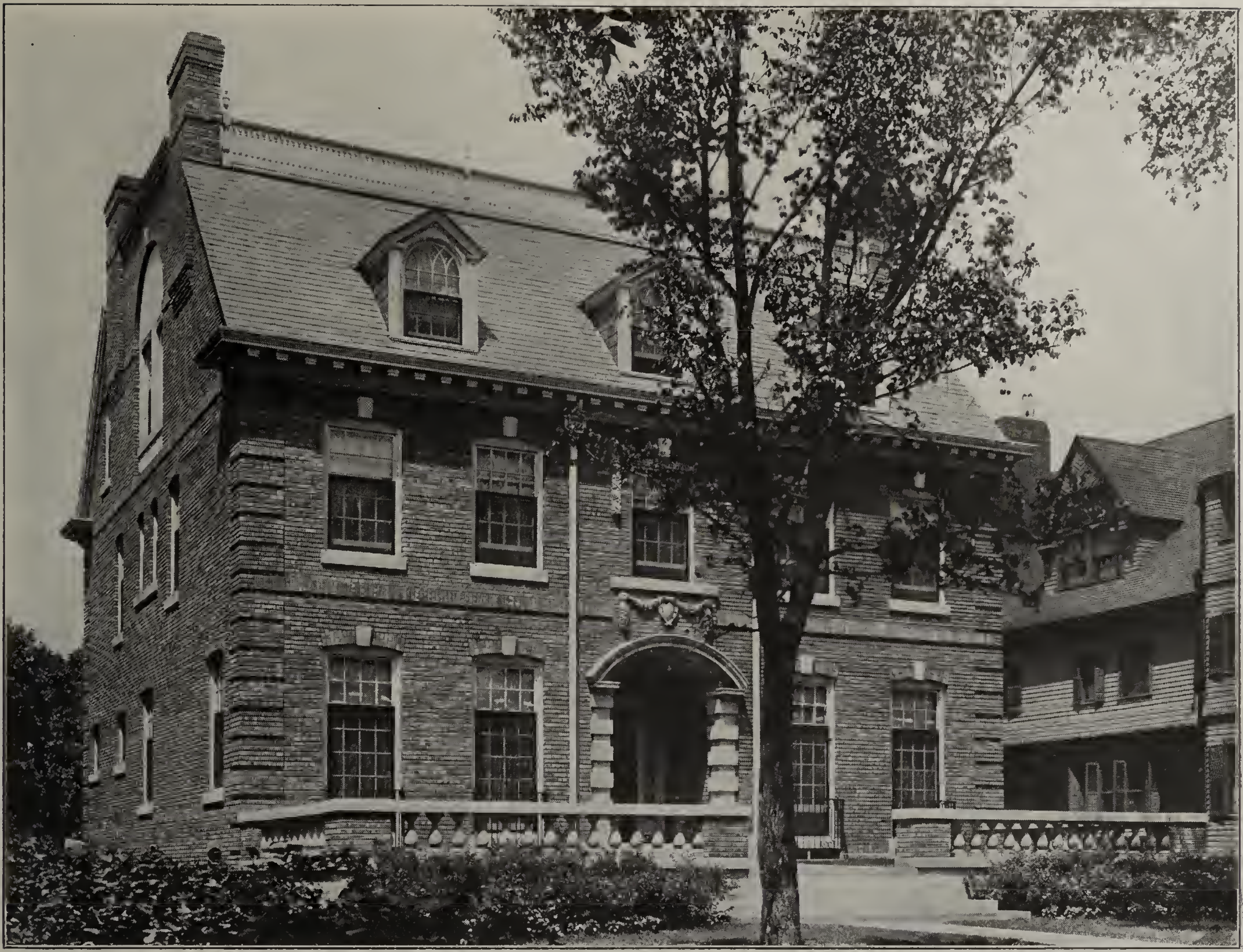
was the remark addressed to a smiling Brick Manufacturer.

"Why shouldn't I?" he replied. "You know I have discontinued making hollow block and had an entire outfit of machinery 'eating its head off' with rust. I put this ad in 'Brick and Clay Record':"

For Sale—A complete equipment for manufacturing hollow block.

"Say, man, it took like a 'house afire.' Sell it? I should say, and do you know, I had so many answers if I had only had ten more machines I could have sold every one. I tell you, these Classified Ads are great. Did you ever try one? They only cost $2.00 an inch. Why don't you try to sell that mine pump you don't need?"

This is only one example of the many satisfied users of our Classified Ad Department. This is the time of year to get your wants supplied. Try one.



Striking Example of Modern House Construction Showing Texture of Wire-Cut Rough Face Brick.

# Brick Houses

By Arthur C. Clausen, Architect.

Our stately forests are fast disappearing before the hand in search of gold, but old Mother Earth still remains, and from her bottomless clay beds we must obtain our building materials in the future, the use of which are so well known in the present day, and have long since been tried and not found wanting.

A brick house will command immediate respect, even when poorly designed in an architectural way. How enduring and substantial it looks with its solid walls and how much strength of character is expressed in the very color of brickwork, which only becomes the more beautiful with age, and lasts unrenewed for ages. Moisture does not affect brickwork. It is true that it is more or less porous, but there are so many simple ways of preventing the moisture from penetrating to the inner surface of a wall that it is not a point to be considered. Brick will not disintegrate when it is frosted, as is the case with many kinds of stone. Having already been burned in the kilns until opaque, it will withstand the hottest fire and will not crack and crumble under the severe test of alternate intense heating and sudden cooling with water. Marble becomes chalk under this test and but few kinds of stone will stand it. Since stone will not stand as well as brick, the varying conditions under which it is often placed, it is not strange that the life of a wood frame house is so much shorter than that of a brick one. Wood will rot when damp. It will deteriorate when dry and "dry rot" when excluded from the air.

### Brick Now of Many Colors.

The first objection, from an architect's standpoint, to the universal use of brick as a building material in the early days, was the lack of variety in colors, the first brick manufactured in the country being practically all confined to two colors, a creamy yellow and red. The discovery of many different clay beds throughout the country and the invention of many modern processes for the manufacture of brick have made it possible to purchase them in almost any color and any variety of texture desired.

Brick veneers belong mostly in three classes: sand-mold brick, smooth face brick and vitrified brick. Sand-mold brick are the softest and cheapest, the easiest to lay in cold weather, the quickest to lay at all times, but are less attractive and less permanent than other veneers. The most commonly used brick for veneer is a smooth-face hard-burned brick which can be obtained in a great variety of colors.

Vitrified brick, to which class belong the common paving brick, are very hard, almost impervious to moisture, difficult to lay, but very permanent, and when properly used are very attractive.

No set rule can be established for the selection of the brick, the style of the house or building having a great deal to do with the appropriate kind or color of brick selected. Most people make their selection by looking around to see where they can find a home similar to their home, having a brick exterior which pleases them; and then make theirs accordingly. It is often difficult, however, to find a building both similar in style and having a brick that pleases. It is, therefore, best to save time and to be sure of good results, to take the architect's advice in all matters of this kind.

### Variety of Color Pleasing.

A perfectly plain wall never looks as well as one in which there is a slight variation of color. This is true of all things which are beautiful. An artist's eye craves variety. When a perfectly plain or even color is used, variety can be obtained in the wall by using a mortar bead of a slightly different shade, but in harmony with it. Few people realize how important a feature a mortar joint is. It makes a great deal of difference as to what its color is, whether it is wide or narrow, deep struck or shallow. For perfectly smooth brick a narrow joint is preferable. For a brick with a rugged face and sand-mold brick, a wide joint, deep struck, or one entirely cleaned out to a depth of one-half inch is preferable. This latter method gives the brick a chance to cast a shadow over it, and assists in giving a variety of color to the wall. A variety is many times obtained by using vitrified brick of slightly different shades of the same color. But few houses can stand this treatment. They must be of bold detail and rather rustic in appearance, the Tudor Gothic style being one in which it can be used to advantage. These brick sometimes used as tapestry brick run through various shades of coppers, olive greens and purple browns to deep blue. A brownish gray, running into cream-and-coffee shades, deep russets and even tobacco-brown, giving in mass the effect of old ivory, is sometimes used.

### Difference in Cost Slight.

When one comes to compare the actual difference in cost between a brick-walled house and even an entirely fireproof house, with the old style of frame construction, it is surprising (owing, of course, to the rapidly rising price of lumber) what little difference of cost exists between them, and, when one comes to consider the saving of repairs, the feeling of security, the beauty gained, and the durability of a brick house, to say nothing of the saving in heat and insurance, one should stop and think twice before building a frame house at the present time.

## PLANT ALREADY TOO SMALL.

The following clipping from a Dayton, O., paper tells of the remarkable extent of the growing business of the C. W. Raymond Co.:

"The large new plant of the C. W. Raymond Co., in Edgemont, presents the strange anomaly of being too small for the needs of the business before it is completed. It was supposed to anticipate the growth of the business for the next ten years, but it has already been found to be entirely inadequate.

"The company has contracted with the Dayton Malleable Iron Co. and the Advance Foundry Co. for 1,000 tons of gray iron castings for immediate delivery, which will, in a measure, relieve the stringency of the sudden and unexpected demands for its products.

"Orders have been placed by the growing concern for a number of new lathes, boring mills and other improved machinery for use in the machine department."

The Somerset (Pa.) Brick & Ice Co. have dismantled their brick plant at Somerset as it was on the property of the railroad. The plant, however, will be re-built on another location in the near future.

## MINATURE CATALOG.

The Murray Iron Works, of Burlington, Iowa, have shown excellent taste in getting up the Miniature No. 65 catalog which they have recently published. The binding is an excellent representation of brown leather and on the front page is an illustration, in colors, of one of their famous Corliss engines.

More than sixty years ago, George C. Corliss built the first engine of this type, which contained so many new and novel features that it became at once very popular, acquiring a reputation for efficiency, economy and durability, which it has kept throughout the years.

Among the distinctive features of this engine are: the use of four valves—two steam and two exhaust—so placed as to reduce "clearance" to a minimum; a direct connection of the governor so as to determine the ratio of expansion; the use of a rotating valve, capable of being cheaply and readily fitted up and easily moved and a form of frame and general design giving maximum strength and stiffness.

The catalog illustrates numbers of engines and boilers, describing the various parts in detail and is full of valuable information on the subject.

## OIL VERSUS COAL.

Increasing interest in the subject of oil vs. coal and the indisputable advantages of oil as fuel for burning in sections where the price of coal is not so low as to make the use of oil prohibitive, has resulted in bringing the firm of Tate, Jones & Co., Pittsburg, Pa., into prominence in connection with this particular problem of clay working. Tate, Jones & Co. are oil burning engineers and have perfected a system for the burning of clay ware with fuel oil, which has proven highly satisfactory and which has been adopted by a number of leading manufacturers. They have prepared a little booklet on the subject of fuel oil for burning clay ware and will be glad to send a copy to anyone interested. Their address is the Empire building, Pittsburg, Pa.

## ISSUES INJUNCTION.

A perpetual injunction, restraining George R. Curtis from doing business as the Curtis Machine Company, Hettro Belting Company, and National Supply Company, from advertising, causing to be advertised, or causing to be published in any newspaper, periodical, booklet or catalogue, in any manner whatsoever, Sawyer belts, and also restraining him from representing to any person, firm, corporation, or individual, that he will sell the Sawyer belt, or Sawyer belting, has been granted the Sawyer Belting Co., of Cleveland, Ohio, manufacturers of stitched canvass belting.

This decree has been made perpetual in United States Circuit Court, Toledo, Ohio, January 11th, 1911.

## MOXAHALA BRICK CO.

The Moxahala Brick Co., at Columbus, O., has its new plant under construction. The large buildings are nearly completed and the company hopes to have the plant in shape for operation in time for the spring trade.

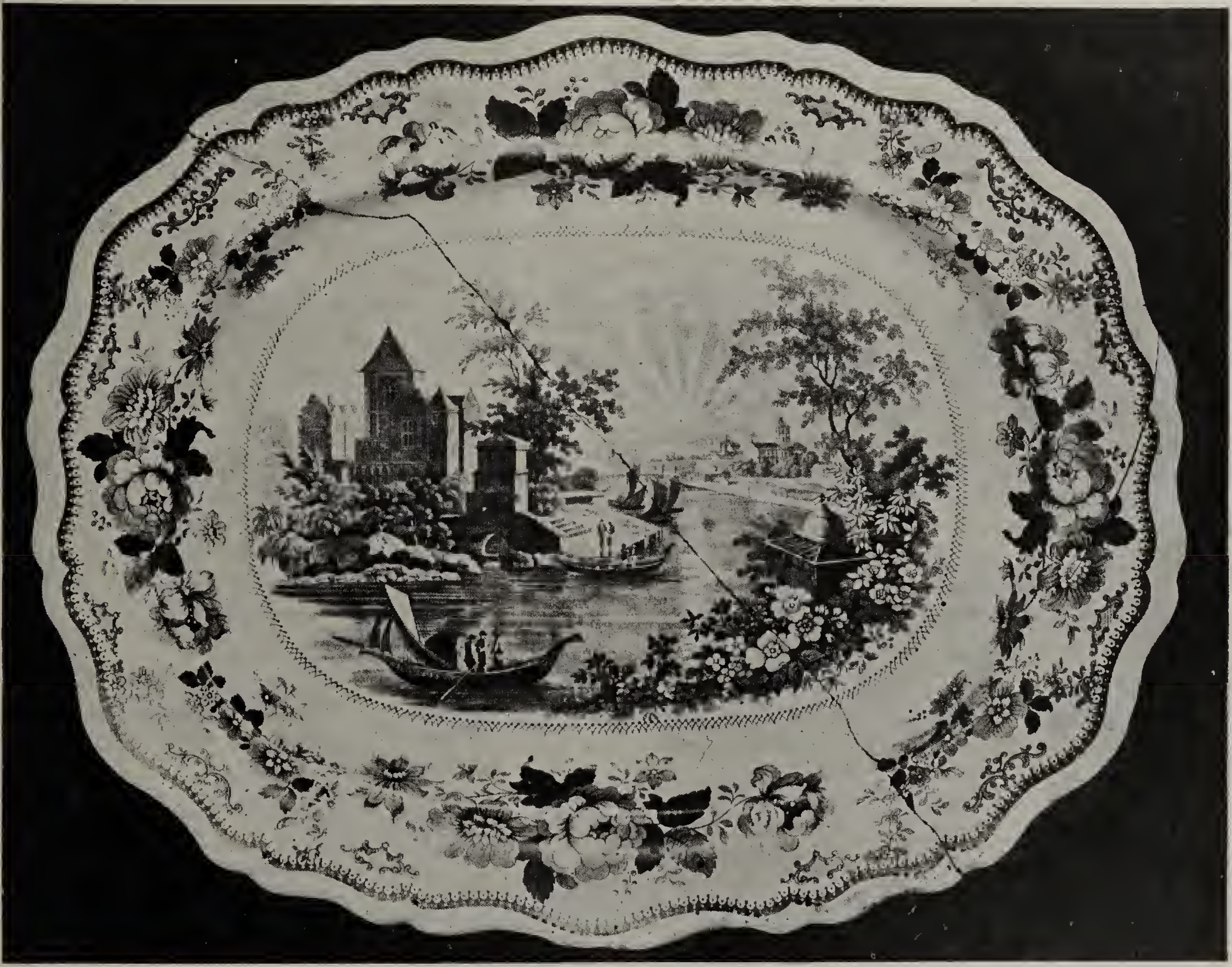
## FROST PLANT BUSY.

We are pleased to observe that the plant of the Frost Mfg. Co., at Galesburg, Ill., is unusually busy and the company is behind on its orders. This is evidence of the great popularity of the Frost engines and boilers, as well as of the Frost dry pans. Owing to the rush of orders the Frost Co. has been obliged to work its plant overtime.

# Early English Porcelain

We were fortunate in being able to secure the accompanying illustration of old English porcelain which we believe is one of the best examples of this class of ware.

Among early English manufacturers, whose product has made this class of goods famous, were the Bow factory, started by Thomas Fry in 1730; the Chelsea factory in 1745; and the Wooster factory (Slight & Barr) started prior to 1730.



Records show that experiments were made in England toward the reproduction of porcelain as early as 1700. The first real factory in that country was erected at Bow about the year 1730. A new material, known at that time by the name of "uniker," but now known to us under the name of kaolin, was introduced into the mixture from which this ware was produced. It is said that when this ware was first produced it was very hard, but was at a later date made much softer. This is attributed to several causes, but the generally accepted theory is that the potter, having become better acquainted with the materials at hand, was enabled to control more perfectly the ware he was making.

The Bow factory is said to have been started by Thomas Fry in the year 1730, but in the year 1770 Weatherby & Crowther secured control of the factory and a complete reorganization took place.

The Chelsea factory, which was the second English porcelain plant, is said to have been erected in the year 1745 by Nicholas Sprymont, together with a number of merchantmen, who operated the factory six years.

Wooster porcelain is also among the famous English porcelains. This factory, which had been established at an early date, was in the year 1730 sold to Thomas Slight, who operated the factory for 60 years. Upon his death in 1790 he left the factory to his sons. A few years before Mr. Slight's death, Martin Barr, a former employe of the Wooster works, had started a porcelain plant, but later formed a partnership with Thomas Slight's sons under the firm name of Slight & Barr.

Wooster porcelain is said to have brought higher prices than the early English porcelain. It was at the Wooster works that copper-plate printing was first introduced. This process, which has been handed down from that day to this, was one of the best improvements ever introduced into the pottery industry. A great many fine specimens of the earlier English copper-plate work are to be had. The accompanying engraving shows an exceedingly fine specimen of English porcelain and displays to advantage the earlier English copper-plate printing work. The specimen we show is a very fine piece of early English porcelain of the soft variety; the glaze is very lustrous and the execution of the engraved work is excellent. The workmanship of the piece is very fine indeed, and shows that a great deal of care was taken in the manufacture.

## FIREPROOFING FOR DRY KILNS.

Another use has been found for fireproofing materials, such as hollow tile, the latest being for the construction of lumber drying kilns. One firm, after fourteen months experimenting had plans carried out for the construction of a hollow tile fire proofing kiln, and excellent results have been obtained.

One of the first kilns of this character was built for the M. B. Farrin Lumber Co., of Cincinnati, O., by the Standard Dry Kiln Co., of Indianapolis, and the National Fireproofing Co., materials were used. The accompanying photo shows the interior of one of these drying kilns in which more uniform system of drying is obtained than heretofore possible.

In commenting upon the new hollow tile kiln, President H. J. Pfister declared to a representative of "Brick":

"Before constructing additional dry kilns, we spent some twelve or fourteen months in investigating the merits of each kiln on the market, as well as the buildings erected for same.

**"Our eight kilns were constructed of frame and concrete and are not air tight and fire proof and consequently are not as efficient as they should be.**

"Our investigation led us to believe that parties who had erected buildings of brick or concrete, experience difficulty in keeping the moisture out of the walls of these buildings.

Dry Kiln for Lumber Yard.

"The point, which we most carefully considered, was to construct an absolutely air tight and fire proof kiln building, and at the same time to adopt in its construction some material which would be impervious to moisture. The only material which presented itself for this work, seemed to be hard burned vitrified tile with a glazed surface and this was used for the walls and roof construction in our new buildings.

"The walls were constructed of 8x12 tile, with all outside exposed surface of kiln and stacks covered with cement plaster, while the inside finish of the walls and roof of the kilns consist of vitrified tile surface with finished cement joints.

"Vitrified tile of the same dimensions were also used for the roof of the kilns, supported by reinforced concrete girders; on top of this cinder concrete averaging 3 in. in thickness was placed and this again covered with a 4-ply tar and gravel composition roof.

"The Standard Dry Kiln of Indianapolis, were adopted, making stacks for proper ventilation necessary and the top of these as well as the top of all walls are covered with specially designed vitrified coping, making the construction of the kiln building, with the exception of the four doors, absolutely fireproof.

"The loading platform at the receiving end of the kiln is constructed of reinforced concrete and the unloading platform at discharge end is constructed of the same material. The foundations for walls and all track supports throughout the kiln are also made of reinforced concrete.

"The building itself is 150 ft., the same in length and size as our eight old kilns and each has a capacity of 22 x 6 ft. 6 in. trucks within the kiln with two on the loading platform and two on the unloading platform.

"With the experience we had with the eight kilns erected by ourselves, during the past eight years, and which are a combination of the Morton and Emerson kilns and with the information which we gathered during our investigations of lumber drying, we decided that the standard dry kiln, as manufactured by the Standard Dry Kiln Co. of Indianapolis, was the best kiln in use in this country for our purpose and we therefore adopted the same for our new kilns and are remodeling our old equipment and installing the same system.

"Each kiln is guaranteed to dry 12,500 ft. of lumber daily and while the kilns have just been placed in operation, we have every reason to believe that the Standard Co. will have no trouble whatever in meeting its guarantee.

"The plans of the building which we erected for their apparatus, were approved by their engineers and we feel confident that no mistake was made in adopting this method of construction, as we have no trouble in maintaining the temperature and humidity which they desire in drying lumber."

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## CLAY PRODUCTS GAINING.

Because we are obliged to rely upon the reports of the U. S. Geological Survey for our statistics of the clay industry, it is with great interest that clay products manufacturers watch the fluctuations in the figures compiled by this department from year to year. Owing to the census work, the statistics for 1909 were greatly delayed and the complete record of the clay business for that year has not yet been published. A bulletin, however, giving a statement of the mineral production of the U. S. gives some very interesting figures, the first yet published, relating to the clay business for 1909.

We find that as everyone supposed, the total production of burned clay products shows a substantial advance in 1909 and owing to this increase and the decrease in the production of petroleum oil, clay products now rank third in order of importance among the mineral industries. The production of clay products for 1909 amounted in value to $166,321,213, a gain of $33,000,000 over 1908 and a gain of more than $5,000,000 over 1906, which was the banner year in the clay business up to that time.

In value the anual production of clay products is only surpassed by iron and bituminous coal. The value of the copper product was only $142,000,000 in 1909 and of petroleum $128,000,000. The combined output of gold and silver for that year was only $128,000,000.

Since 1900, the value of the clay products manufactured in the U. S. has increased by leaps and bounds. In the year 1909, the total value of our clay products was reported as only $96,212,345. These figures steadily increased until 1906, when as stated above the total value amounted to $161,000,000. During the bad years of 1907 and 1908, the value of clay products dropped off to an alarming extent. The figure in 1908 totaled only $133,000,000.

## RISKS ATTENDING OILING OF BRICK MACHINE.

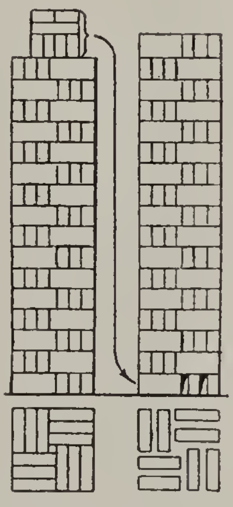
An engineer employed to run a stationary engine at a brick yard testified that the superintendent, the person from whom he took his orders, told him to "come outside and oil the brick machine," and called his attention to the condition of two cogwheels upon the machine which required oiling, but which were not provided with a guard or covering of any kind; that while standing in front of these cogs, engaged in oiling them, a stone was thrown from the machine, and in an attempt to avoid this stone his arm was caught in the cogs and seriously injured. The company contended that the man knew the condition surrounding this machine—in fact, that he had assisted in installing it a few weeks previous to the accident; that he had oiled it frequently, and assumed the risk incident to the employment, and, lastly, that he was guilty of contributory negligence.

This occurred in New York state, where the employer's liability act provides that an employe by entering upon or continuing in the service of the employer shall be presumed to have assented to the necessary risks of the occupation or employment and no others. The necessary risks of the occupation or employment shall be considered as including those risks, and those only, inherent in the nature of the business which remain after the employer has exercised due care in providing for the safety of his employes.

In reviewing the case in the light of this law, the second appellate division of the Supreme Court of New York, which affirms a judgment in favor of the plaintiff, says, Perrotta v. Richmond Brick Co., 108 New York Supplement, 10, that the plaintiff assented to the necessary risks of the occupation and employment, and no others. He testified that he was employed as an engineer, and was taken from his work by the superintendent, who had commanded him to oil the brick machine. According to his version, it was no part of his duty under the defendant's employment to oil this machine, and if this was so he did not assume the risk. Further than this, the legislature intended that the master should provide a reasonably safe place and reasonably safe and proper implements, and after this was done, and the master had eliminated all dangers from the employment except those that were inherent in the nature of the business itself, if he chose to enter the employment after an opportunity of inspection, he assumed the risks incident thereto. If it was true, as claimed, that the duty assigned to the plaintiff and in which he was engaged at the time of the accident, was no part of his employment, then it was not a risk of the occupation or employment ,and not assumed by him; but it was unnecessary to discuss this, because, if the defendant failed to eliminate the dangers of the employment by providing reasonably safe appliances, the plaintiff did not assume the risk.

The question of the plaintiff's contributory negligence was likewise one of fact. It was true that the plaintiff stood in front of these wheels, and that the accident might have been avoided had he stood in the rear and oiled the cogs from that point. The work might not have been as artistically done as the wheels were revolving away from him; but it might have been done with greater safety. He was not required, however, to exercise the best judgment possible. He was only called upon to exercise such a degree of care as might be expected of persons of reasonable prudence engaged in the same occupation. The wheels were in plain view. The work of oiling the machine was attended with some danger, and under ordinary circumstances a person might be guilty of negligence in permitting his hand to be caught in these cogs. But the plaintiff explained by saying that he saw a stone coming from above; that in an attempt to avoid it he dodged, and his arm was caught. It could not be held as a matter of law that the plaintiff was guilty of negligence in changing his position as he saw the stone coming, although as a matter of fact it would not have hit him, had he remained quiet. The jury decided that he was not negligent because of the involuntary movement of his arm, and the court thinks their finding in this respect was supported by the evidence.

## STACKING BRICK.



A German brick manufacturer, who has been greatly troubled by his brick absorbing water from the wet ground on which they were stacked, has stated that, by arranging them in the form shown at the right of the sketch, he was able to overcome his difficulty. For convenience in counting, he stacks his brick in blocks of 200—a custom much followed in some parts of the Continent—and formerly stacked them on a base of twelve brick, making sixteen rows of twelve brick each, with eight brick over at the top of each block. This arrangement is shown at the left of the sketch, in elevation and plan. The brick at the top are, however, useless and inconvenient, especially in snowy weather, as they prevent the snow from being rapidly swept off the stack. By placing them at the bottom of the brick, and arranging them somewhat openly, as shown, they form a kind of foundation, which helps to keep the remaining brick dry.

Owing to the smallness of the sketch, the exact position of the brick is not shown, for the twelve brick resting on the eight lowest ones must in practice project slightly, as three headers and a stretcher (which form one side of the block of twelve brick) cannot be set exactly on a stretcher and two headers in the manner shown. The sketch is, however, sufficiently accurate for its purpose, and, if necessary, the bottom two headers shown could be made to take the whole weight of the stretchers immediately above them.

This may be modified to suit the arrangement of the brick in much larger blocks, as is more usual in this country, but to obtain the best results the lowest brick of all —forming the "ventilated foundation" of the stack—should be impervious to water, or should have some kind of "damp course" laid upon them. Otherwise a certain amount of moisture will still be drawn up into the brick above. To use brick of a different composition for the bottom layer would, obviously, destroy the "count," which is an important feature of the original arrangement.

## VALUABLE SUGGESTIONS.

Mr. A. R. French, 521 N. Clinton Ave., Trenton, N. J., answers a correspondent who asked for a remedy for checks and cracks in brick as follows:

"Being an interested reader of "Brick and Clay Record" I would like to offer a suggestion for the South Carolina Brick Co., whose brick check and crack over near the eye of their kiln, as per March 1st issue of the "Brick and Clay Record", page 288. A fault similar to this has been remedied by building a stationary bottom, leaving smaller space above the fire holes. I will send a drawing if requested.

It seems to me, in this case, that this clay body will not stand the fire it receives at this particular place, as the fire is much greater at the bottom, than at the top, of an open kiln. Having the proper bottom built in the kiln, would not cause much expense, and would no doubt eliminate the loss. Again, if the clay is too pure and the kiln is not shut up tight at the fire holes, the air gets in when cooling and causes many to crack. By seeing a pound of this clay, and with a better knowledge of the kiln bottom, I could undoubtedly tell the cause and give a remedy.

While writing I wish to give a recipe very useful to face brick manufactures. Instead of using oil in press boxes, take hot water and shave up some soap in it,—let it dissolve, and use in the box while in operation—at night, of course, oil up for the night with oil, to keep from rusting. By the use of soap the brick works free, and gives a very nice face; this is very cheap and of much advantage. During my twenty-one years of experience I have used it with much success.

I have figured the value of brick clay, as follows: 5,000 lbs. of clay made up in common brick sell from $5.00 to $8.00; 5,700 lbs. made up in face brick sell from $12 to $20; 5,700 lbs. made up in weather proof glazed brick from $40 to $120; 5,700 lbs. made up in ornamental dressed tile, from $800 to $1,000; 5,700 lbs. made up in ornamental weather proof tile, glazed from $800 to $1,500.

I trust these suggestions will be of benefit to the South Carolina Co. I await the next issue of "Brick and Clay Record" with interest as I enjoy every issue."

Mr. John McAllister, 930 N. 4th St., Columbus O., writes giving another method to prevent checking:

"If the brick manufacturer, in South Carolina, can conveniently mix some coarse, sharp sand with his clay he would have less loss from cracking and checking, or he might improve matters by careful water smoking and gradually raising his fires.

## SALT GLAZING.

A burner gives some useful hints on salt glazing as follows:

When the goods are set in the kiln great responsibility rests on the burner. Many employers think any man will do for a fireman, but this is a great mistake; he must be both intelligent and dependable, as one careless fire may spoil a whole kiln of goods.

When smoking the kiln half of the fire bars should be covered for the first three shifts of 24 hours per shift, and the damper kept very low, so as not to allow too strong a draught, especially if there are heavy goods in the kiln, as they will splinter, owing to too rapid evaporation. The fourth shift, three-fourth of the fire-bars can be covered, and on the fifth they can be completely covered and the kiln warmed up. Great care must be taken at this stage, and no forcing of fires should be allowed. The time after the bars are covered until the kiln shows a red glow inside, should be at least 12 hours. This red heat should be kept unvarying for five hours, so as to expel all latent gas. Then the kiln can be forced until the required temperature is reached, this varying with different kinds of clay.

Then comes salting. To do this the fires should be shining clear through the bars, so as to admit sufficient air during the process. If the bars are close set the door may be left a little open, but great judgment must be exercised, as too much air over the bars may cause what is termed kiln-cracked goods. After the vapor has cleared, the temperature must be brought back before the second salting. When this has been done and the vapor has cleared away sufficiently to allow a trial to be drawn, the burner will at once see if the goods are the desired shade. If too light, the damper can be lowered and kept down till the color has been obtained. If these directions are carefully carried out the goods will be a rich golden brown.

## TO FASTEN PIPE INTO HOSE.

Anyone who has repaired a broken hose knows how hard it is to insert a pipe in an open end, as the pipe and the hose are usually not the same size. File the pipe to make it bright and heat it just enough to make the metal blue, then put it in a vise. Slip the hose on the pipe quickly and place it in water to cool, after which attach the clamp, and the hose will hold tightly.

## INSULATION FOR STEAM PIPES.

A method of preparing an insulating covering for steam pipes may be of some benefit to readers interested in pipe fitting. The pipe is first covered with a preparation of liquid water glass, 200 parts; 100 parts water; light, fine sand, 150 parts; and of sifted sawdust, 30 parts. This is only a primary coat. The second is: Three parts of ground cork waste, 4 parts potato starch, 4 parts potato dextrin, 60 parts dry loam, 4 parts powdered water glass, 8 parts sifted sawdust, and 30 parts water. The various substances should be finely powdered and then added to the water and loam. When it is thoroughly mixed it may be laid on in thin layers, allowing each layer to dry thoroughly until it is two inches thick if so desired.

## BRICK AS A FIRE RESISTANT.

The Engineers' Society of Western Pennsylvania have been conducting a series of experiments on different classes of brick. It was found that with mixtures of magnetite and marble with kaolin the refractoriness of the magnetite brick decreases as the amount of clay increases, and the same applies to the addition of lime. With mixtures of alumina and silica, additions of kaolin bring down the melting-point of pure alumina considerably below the normal value of about 2,000 deg. C., and if quartz be added with 9.1 per cent alumina the melting-point is reduced to about 1,566 deg. C., after which a very small amount of alumina raises the melting-point rapidly to 1,790 C.—the melting-point of pure silica. In the case of a silica brick with a certain amount of clay introduced as a binder, it was found that as the amount of clay is increased the refractoriness rapidly falls off after the added amount reaches 6 per cent. This points to the desirability of making brick either very high in silica or entirely of clay. Other investigations indicated the effect of potash, soda, lime, magnesia and iron on the melting-point of clay. Slight additions of the fluxes named reduced the melting-point, the reduction being proportionate to the quantities added.

## EFFLORESCENCE ON BRICK WORK.

Continued from page 365.

used; barium chloride and carbonate are most commonly used.

In case soluble sodium compounds are present, the addition of the above-mentioned barium salts would form either sodium carbonate or chloride, both of which are soluble. However, they are so soluble that they would be readily washed from the surface of the ware by the rain, as soon as they formed.

According to Gerlach, a clay containing 0.1% calcium sulphate, which is 0.4 gram per pound, would require 0.6 gram of barium carbonate to perform the reaction. However, 6 or 7 grams should be added to every pound of clay, for safety. This would mean practically 100 lbs. per 1,000 brick. If barium chloride is used, but 26 lbs. are required per 1,000 brick. However, when this is used, close to the theoretical amount must be added, for if added in excess it will form a scum itself.

This method cannot, of course, be used in the dry press process, where no water, or at least very little, is added, as the barium or other salts must be used in solution to do the required work.

**Treating the Water.**—When it is necessary to use a water that contains injurious soluble salts, it is simply necessary to precipitate them before adding the water to the clay. Many good clays are being ruined by bad water.

**Correct Drying.**—If ware containing soluble salts is placed in a drier and allowed to sweat slowly, the chances are all in favor of scummed ware, whereas, if the water is carried away from the surface of the ware as fast as it appears this will not often be the case.

It is a remarkable physical fact, not yet fully explained, that where a clay contains soluble salts, they are not deposited on the surface at all, or at least to a less degree, the drying is steady and rapid, than where it is slow and discontinuous. It seems that rapid drying causes the water to come through the pore channels of the clay as through a filter and a sort of osmosis is set up, by which the saline matters are retained inside the mass of clay, while the water escapes as vapor from the outside. But where the drying is slow the salts get through this barrier and arrive on the surface plentifully.

It is therefore only necessary that brickmakers, in order to avoid trouble from this source, build good driers and install in them hygrometers by which their operation can be controlled.

Many other methods are used to prevent this trouble; some of them, however, have but temporary effects. One of these is to paint the surface of the scummed ware with oil, which for the time being covers up the scum. This is really practicing a fraud, for while the ware does not show scum when put into the building it shows up as soon as the oil evaporates.

## KILN CONSTRUCTION.

Paper delivered by J. W. Marwood before the Canadian Convention at Toronto, Canada, Dec. 14-16.

There are many different types of kilns today, each style, in most cases, adapted to some particular kind of clay, or line of manufacture. In this article it is our intention to talk on the three types of kilns that are most generally in use. The round down-draft kiln, the rectangular or square down-draft kiln, and the continuous kiln. If we are to judge the above types of kilns by the number in use, and the amount of ware burned in them, we must give the precedence to the round down-draft kiln, as I believe there are more of them in use today. The size most generally in use and which gives the best all-round satisfaction is the 30-foot inside diameter kilns, 8 feet to the spring of crown and 7-foot spring in the crown, which should be built of good material and lined in the parts exposed to fire with a good grade of fire brick. The kiln should be properly banded with at least six bands, three of one-quarter-inch by six-inch, and three of one-quarter-inch by four-inch iron.

The next question is that of kiln-bottoms, and at this point we reach a place of kiln construction that, I believe, more thought and endeavor has been spent on than on any other part of the manufacture of clay products.

However, it has been my experience that the open or riddle bottom kiln with an individual stack is invariably the most successful. Notwithstanding the fact that there are many that are termed solid-bottom kilns, and also another type, multiple-chimney kilns, that are very successfully used in many places at the present time.

The square down-draft kiln is an excellent and popular kiln, in many cases the most adaptable for the needs of the manufacturer. The general line followed in construction is as I have aforesaid when talking of round kilns: if you desire a satisfactory and lasting kiln, good material and good workmanship are the essential features. The usual size as best adapted is 18 feet wide by 7 feet 6 inches to spring of crown, and 7 feet 6 inches spring of crown, and if handled by a single stack, about 54 feet is the desirable length, but if multiple chimneys are used, they can be built much larger.

The points in which a square down-draft kiln is superior to the round one is, that it is more accessible to set and draw, and that the door can be made large enough to accommodate a wagon, and that on account of the less exposed surfaces to the fire where a solid-colored face brick is desired, a better colored brick is obtained.

We have now reached a point in our paper in which we will take up the question of continuous kilns. The principal need today with the brickmaker is that of economy of manufacture, and at no point in the process of making them is there as much variance of cost as in the burning.

Individual down-draft kilns consume from 800 to 1,200 pounds of coal per thousand, while the continuous system using from 300 to 400 pounds per thousand more than cuts the cost of burning in individual kilns in two.

The types of continuous kilns in use are many. The top firing and open top kiln has in the common brick trade many supporters. Its comparatively low cost of construction and its economic burning of ware make it in many cases a favorite with the manufacturer of common brick. But on account of the earth dressing, which is necessary, on top of the kiln, the clinkers, dust and ashes caused by burning the fuel in the ware makes a kiln of that type undesirable for anything but a common product.

The next type we will mention is a close relation to the last type of kiln described, with the addition of a crown or arch which does away with the top dirt. But, on account of its being fired from the top, we still have the undesirable clinkers and ashes to contend with.

Then we have the continuous form of kilns with the side furnace, same as an ordinary down-draft.

I would like to say at this time that we have now reached a point in our talk on kiln construction in which the down-draft and the continuous kilns start to come together. By that I mean to borrow from each other the good features each type of kiln possesses.

But, summing the whole article up, we must not forget the last and perhaps most essential feature of all: burning attention and horse sense in the man behind the shovel.

# SEWER PIPE NEWS

## SEWER PROSPECTS ON THE COAST.

A correspondent advises us that sewer pipe in California is just beginning to move, after a couple of months of dullness. While a number of construction contracts have already been let, as few of the contractors have been able to start work, no great amount of pipe has been sold. The work in San Francisco is to continue on about as large a scale as last year, while many miles of new sewers are to be laid in the territory recently annexed to the city of Oakland. This district, which a few years ago was an open field, is being opened up by the improved suburban service of the Southern Pacific, placing it within easy reach of the business districts of Oakland and San Francisco, and has already become so thickly settled that increased sewer service is necessary.

## BOOST THE PRICE.

A man prominent in the sewer pipe industry writes us as follows:

"Noting your remarks in reference to the condition of the markets in the manufacturing of sewer pipe and other clay products, in your March number of 'Brick and Clay Record,' would state that we heartily coincide with you, adding that it seems strange that the manufacturers of this product should still persist in 'slashing the prices' to sell their production every season.

"It is an old story with the manufacturers; they seem to conceive the idea, that if orders are not coming into their factories, as large as expected, somebody in the trade is cutting prices, whereas, if they would make an investigation and find out just how the condition of the market is with their own trade, they could readily understand the situation. This is a false idea they have in cutting the prices to get rid of their stock at ridiculously low prices, and if good sound business judgment was used, they would hold on to their stock for better prices, eventually getting the price where they would make money.

Under these circumstances, the trade in general would understand, that if they wanted this manufactured product they would have to pay a reasonable price to secure it. In fact, it would be a great deal better for everyone concerned in the selling and handling of this product, as they would be getting a profit from the business, but now, it seems that all concerned in this particular line of the clay business are not getting anything out of it, it is merely an exchange of money between the seller and the buyer.

It is a well known fact, that for years nearly all the factories interested in the manufacture of sewer pipe and flue linings have lost money, the profit and loss account speaking for itself. Now, if the manufacturer would adhere strictly to a fair discount, and hold to this discount, the business could be made to pay; but as the seasons roll around from year to year, it seems to be the same old principle of, get rid of your stock for whatever you can, the slogan being 'get rid of your stock.' "

Let us hear from others on this subject which certainly is a "live one."

## SEWER WORK IN WALLA WALLA.

Work is being done on a $20,000 sewer contract for the city of Walla Walla, Washington. The sewer is to be a 24-in. trunk line, 5,600 ft., and laid at a contract price of $3.20 per running foot, which includes piping, trenching, laying the pipe and back filling.

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An exchange states that the general quotation on first-class vitrified standard sewer pipe and fittings, 3 to 24 in., in carload lots, f. o. b. factory, is 88 per cent discount. The demand is comparatively light and the market is not very strong, owing to the competition and a desire to move stocks.

## OUTDOOR METER BOXES.

With the invention of the outdoor meter many of the disadvantages of the old style meter have been overcome. It is now unnecessary for the one who wishes to read the meter to enter the house as it can be read equally well when the house is closed, but at the same time it is impossible for the meter to be tampered with. In some of the southern cities the boxes are built of brick or concrete but the majority now use iron or a vitrified clay with a preference for the latter material.

Clay Meter Boxes.

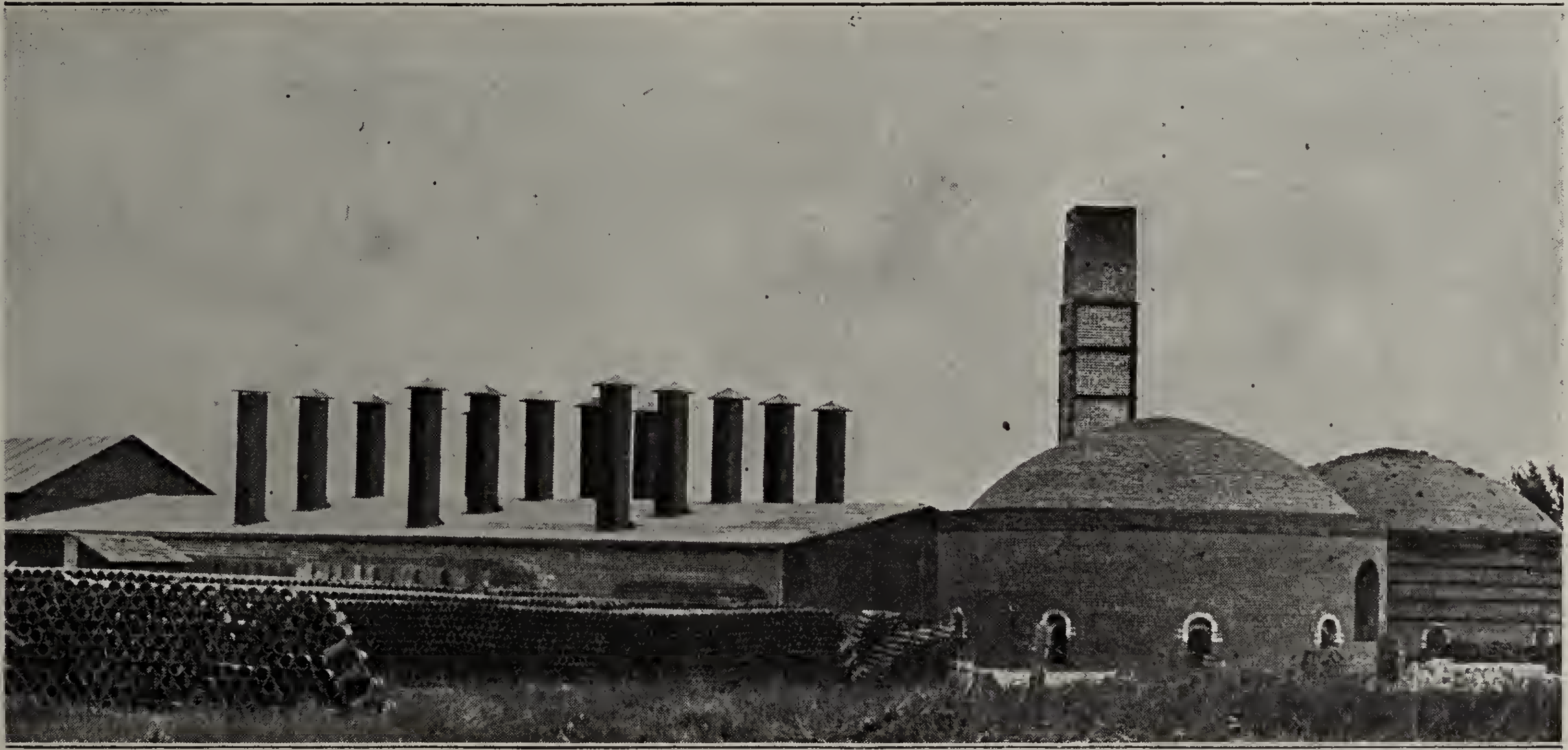
Ordinary vitrified sewer-pipe 15 or 18 inches in diameter is used by a number of large cities; a cast iron top provided with an opening and a cover rest on the top of the pipe at the ground level.

Clay pipe companies are now furnishing pipe especially adapted for this purpose. The cut shows a pile of these clay boxes which are used in the South. They are 15-in. interior diameter and 22-in. high.

# DRAIN TILE & DRAINAGE

## AN INTERESTING COLORADO PLANT.

One of the new Colorado clay propositions which gives promise of great success is that of the Longmont Brick & Tile Co., of which Wm. Stewardson is manager and C. M. Stewardson superintendent. This plant operates three down-draft kilns and manufactures a high grade of wire-cut building brick, hollow block and alkali-proof drain tile. The company is fortunate in possessing a very valuable deposit of hard clay shale, said to be the best material in the west for the manufacture of drain tile and hollow block.



Plant of the Longmont (Col.) Brick & Tile Co.

The plant includes a Wallace soft-mud machine, a Freese pugmill and an Eagle dry-pan. Steam is used for drying and a 100 h.p. engine and boiler provide power for the machinery. Lignite coal is used for burning the kilns.

The Longmont Brick & Tile Co. has shown much enterprise in the organization of its company and the erection of its plant, and especially in its progressive selling methods.

## PROSPECTIVE TILE PLANT.

It is reported that Messrs. J. A. Long, C. F. Headington and Wilbur Hoover, of Portland, Ind., are contemplating the establishment of a tile plant at Jacksonville, Ill. These men are operating a number of factories in Indiana and Iowa and are very successful in the manufacture of clay products. The factories operated by them are located at Lehigh, Ia.; Portland, Ia.; Orestes, Ind.; Rockport, Ind., and Hibbard, Ind.

## IOWA COMPANY GETS CONTRACT.

The Iowa Tile Pipe Co., Des Moines, Ia., secured the contract for the all clay tile, on Drain No. 93 between Ontario and Napier, for $7,180. Digging, laying and back filling were let to Gus. Erickson, of Boone, for $3,674. Hauling to Conway Bros., of Boone, at 99 cents per ton.

## STANDARD SPECIFICATIONS AND TESTS.

The subject of an established Standard of Specifications and Tests for drain tile and sewer pipe is one in which all live manufacturers of these lines are keenly interested. To make an article able to stand the applied test is the ultimate end and aim of the intelligent producer.

The following specifications and tests have been recommended by the Engineering and Experiment Station of the Iowa State College, February, 1911, and adopted by the Association of Iowa Cement Users, the Iowa Brick and Tile Manufacturing Association, the Iowa Drainage Association, and the Iowa Engineers' Society:

### Specifications for Standard Absorption Tests.

Specimens. The specimens shall be each approximately three inches square, and shall extend the full thickness of the pipe wall, with the outer skins unbroken.

Number of Test Specimens. Five individual tests shall constitute a standard test, the average of the five, and the result for each specimen, being given in the report of the test.

Drying Specimens. Each specimen shall be dried in an oven or by other application of artificial heat, until they cease to lose further appreciable amounts of moisture when repeatedly weighed.

Brushing Specimens. All surfaces of the specimens shall be brushed with a stiff brush before weighing the first time.

Weighing. The specimens shall be weighed immediately before immersion, on a balance or scales capable of accurately indicating the weight within one-tenth of one per cent.

Water for Standard Test. The water employed in the standard absorption test shall be pure soft water, at the air temperature of a room which is artificially heated in cold seasons of the year.

Immersion of Specimens. The specimens shall be completely immersed in water for a period of 24 hours.

Re-weighing. Immediately upon being removed from the water, the specimens shall be dried by pressing against them a soft cloth or a piece of blotting paper. There shall be no rubbing or brushing of the specimen. The re-weighing shall be done with a balance or scales capable of accurately indicating the weight within one-tenth of one per cent.

Calculation of Result. The result of each absorption test shall be calculated by taking the difference between the initial dry weight and the final weight, and dividing the remainder by the initial dry weight.

### Specifications for Standard Tests of Bearing Strength.

Specimens. The specimens shall be unbroken, full sized samples of the pipe to be tested. They shall be carefully selected so as to represent fairly the quality of the pipe.

Number of Specimens. Five individual tests shall constitute a standard test, the average of the five and the result for each specimen being given in the report of the test.

Drying. The specimens shall be dried by keeping them in a warm, dry room for a period of at least two days prior to the test.

Weighing. Each dried specimen shall be weighed on a reliable platfom scale just prior to the test.

Bedding of Specimen for Test. Each specimen shall be accurately marked, with pencil or crayon lines, in quarters, prior to the test. Specimens shall be carefully bedded above and below in sand for the one-fourth circumference of the pipe, measured on the middle line of the tile wall. The depth of bedding above and below the tile at the thinnest point shall be equal to one-fourth the diameter of the pipe, measured between the middle lines of the tile walls.

Top Bearing. The top bearing frame shall not be allowed to come in contact with the tile or with the test load. The upper surface of the sand in the top bearing shall be carefully struck level with a straight edge, and shall be carefully covered with a heavy, rigid top bearing, with lower surface a true plane, made of heavy timbers or other rigid material capable of uniformly distributing the test load without any appreciable bending. The test load shall be applied at the exact center of this top bearing in such a way, either by the use of a spherical bearing, or by the use of two rollers or rods at right angles, as to leave the bearing free to move in both directions. In case the test is made without the use of a machine, and by piling on weight, the weight may be piled directly on a platform resting on the top bearing, provided, however, that the weight does not touch the top frame holding the sand, and provided, further, that the weight is piled in such a way as to insure uniform distribution of the load over the top surface of the sand.

Frames for Top and Bottom Bearings. The frames for the top and bottom bearings shall be composed of timbers so heavy as to avoid any appreciable bending by the side pressure of the sand. The frames shall be dressed on their interior surfaces. No frames shall come in contact with the tile during the test. A strip of soft cloth may be attached to the inside of the upper frame on each side along the lower edge to prevent the escape of sand between the frame and the tile.

Sand in Bearings. The sand used for bedding the tile at top and bottom shall be washed sand which has passed a No. 8 screen. It shall be dried by keeping it spread out thin in a warm, dry room.

Application of Load. The test load shall be applied gradually and without shock or disturbance of the tile. The application of the load shall be carried on continuously, and the tile shall not be allowed to stand any considerable length of time under a load smaller than the breaking load.

Calculation of the Bearing Load. The total bearing load shall be taken as equal to the total top load, including the weight of top frame, sand for top bearing, top bearing timbers, etc., plus five-eighths of the weight of the pipe. This total load shall be divided by the length of the pipe in feet so as to give the bearing strength per linear foot of pipe.

### Specifications for Calculating the Modulus of Rupture.

The modulus of rupture for drain tile and sewer pipe shall be computed from the results of the standard test for bearing strength, according to the following rule:

Divide the bearing strength per linear foot by twelve, multiply the quotient by the radius of the middle line of the tile wall expressed in inches, and divide this product by the square of the minimum thickness of the tile wall at top or bottom, also expressed in inches. This quotient will be the modulus of rupture of the pipe expressed in pounds per square inch.

## LARGE CONTRACTS LET.

The Interstate Drainage & Investment Co., of Iowa secured the contract for the open work at Britt, Iowa, north of the forks of the main ditch, Edward Burgitt of Garner the contract for the open work south of that point and the contracts for laying the tile was awarded to Benjamin Burgitt of Garner; Bosh & Gray of Joplin, Mo., and the Anderson Co., of Vincent, Iowa. The ditches comprise a total length of 60 miles. Cost $226,000.

## TILE PROSPECTS.

Messrs. F. Gillett and N. St. Ouge, of Vancouver, B. C., are said to be arranging to establish a tile factory at Anacortes, Wash.

It is rumored that Senator Ferdinand Leutz, who has made such a success of the Hebron, N. D., brick plant, will start a plant at Mott, N. D.

## THE WHITEHALL DRAIN TILE CO.

The stockholders of the White Hall (Ill.) Drain Tile Company organized by electing directors as follows: H. E. Sieberns, Peoria; H. A. McHerra and W. A. Grandy, Mason City; J. T. Calloway, Greenfield; R. W. Green, Kane; Jett A. Kirby, Jerseyville; A. P. Grout, Winchester; H. O. Tunison and H. C. Morrow, White Hall. The full amount of capital is $40,000.

The following officers were chosen: President and general manager, H. C. Morrow; vice-president and treasurer, C. B. Stahl; vice-president, J. T. Calloway; secretary, E. C. Pearce; assistant secretary, Carl Lowenstein.

It is expected that the site of the new factory will be definitely decided upon soon. It is expected that building operations will be commenced just as soon as the weather will permit, and if the weather conditions are favorable it is expected to have the factory in operation not later than the latter part of June or first of July. It is contemplated that from thirty to fifty men will be given employment.

## TILE PLANT IN OPERATION.

The new plant of the Columbia Tile Company, at Grafton (W. Va.) started operations on February 28. The company, which is capitalized at $100,000, is owned by Grafton people. Charles R. Durbin, of the Grafton bank, is president of the company, W. T. Nichol, of Wellsburg, superintendent and W. H. Magee is the general manager. The company purchased the Empress glass plant at Grafton and equipped the building for the manufacture of high grade tile, leaving the glass manufacturing facilities of the plant intact and ready for the manufacture of glass at any time. The output of the plant will be 3,000 tile a day.

## TRI-STATE TILE ASSOCIATION.

At a meeting held in Ft. Wayne, Ind., Feb. 18, of about twenty-five manufacturers of drain tile, from Ohio, Indiana and Michigan, the first steps were taken to organize an association to be known as the Tri-State Drain Tile Association. Committees were appointed and are to have another meeting in about sixty days.

## TILE ITEMS.

V. E. Hawk, formerly manager of the Ft. Recovery Tile Co., at Ft. Recovery, O., has disposed of his stock in this concern to local parties and intends to retire from active business cares.

North Frazier & Co., of Bluffton, Ind., manufacturers of drain tile, owing to the large demand for tile in that territory have just completed the erection of two new Stewart kilns and have added about eighty feet to their drying rooms. This will give the plant twelve 48-foot dry rooms and a battery of four 26-foot Stewart kilns. The concern is using electricity for power with considerable success, and the bulk of all the machinery bears the name of "J. D. Fate Co."

Jacob Burnworyh, of Mollie, Ind., a veteran tile manufacturer, and who has been ill for nearly two months, has recovered sufficiently to permit him to be "out in the open" again.

## NORTHWESTERN DRAIN TILE ASSOCIATION.

The Northwestern Drain Tile Association will hold a meeting at the Boody House, Toledo, O., April 11th to 12th.

An interesting and instructive program has been prepared. A report will appear in the next issue of Brick and Clay-Maker.

# THE PAVING BRICK INDUSTRY

## THE CARLYLE PAVERS.

The accompanying cut of Mr. G. E. Carlyle and two sample "Carlyle Brick" will serve as a pleasant reminder of the excellent quality of the Carlyle paving brick, which the Carlyle Co. turns out at its plant, located at Sciotoville, O., the office of the company, being at Portsmouth.

G. E. Carlyle and Famous "Carlyle Twins" Destined to Become as Popular as the "Carlyle Pavers."

The factory is well equipped with up-to-date machinery. The 200-h. p. engine is of the Erie make, as are also the two 250-h. p. boilers. The stiff mud machines and Eagle presses were made by the Freese Co., the dry pans are from the Stevenson Co.

The Rodger's waste heat system of drying is used, and the goods are burned and vitrified in rectangular kilns, of which there are eight. Coal is the fuel used both for power and burning, about 180,000 tons being used in a year and 72,000 of clay. Approximately 74 employes are kept busy throughout the year, producing an average of 12,000,000 pavers, which have a wide reputation for their impervious and thoroughly vitrified character.

## THE USE OF PITCH FILLER.

The subject of "filler" for brick paving is one which is attracting considerable attention in municipal and engineering circles and on which there seems to be some diversity of opinions among municipal engineers. "Brick and Clay Record" prints the following statements, which have been prepared by a prominent engineer, with the expectation that they will produce arguments from the exponents of other fillers.

Our columns are open to the discussion of all problems relating to furthering the interests and broadening the outlook of our great industry.

At the close of the year 1910, the city of Akron, O., had over 65 miles of paved streets of which over 80 per cent are of brick.

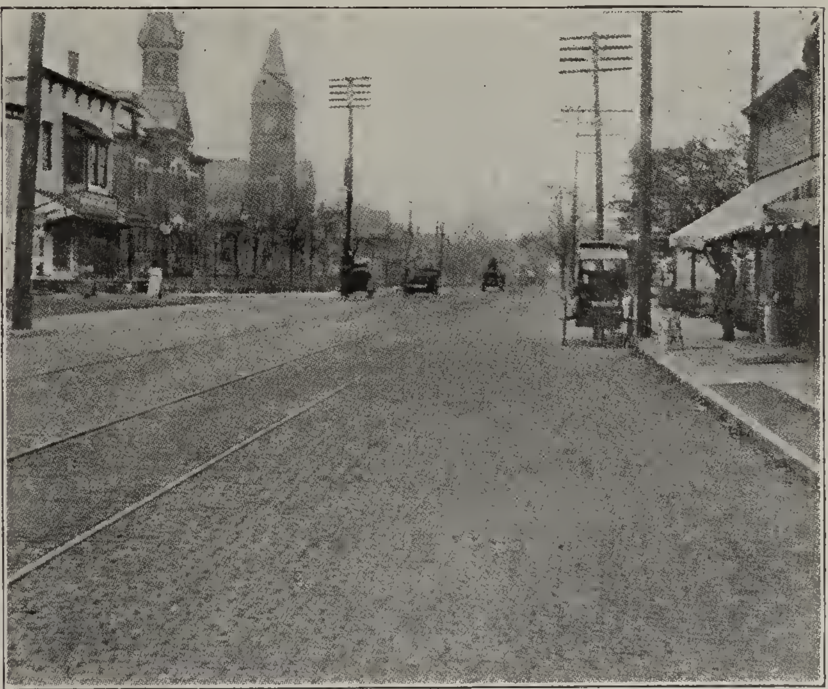
The first brick pavements laid in Akron were put down in 1890, on a sand base with paving pitch as a filler. These streets after twenty years of continuous usage are in good condition today, and not one cent has been spent for repairs other than to replace portions torn up to make water, gas, sewer and electric connections.

Pavements have been laid on crushed slag, crushed stone, gravel and cement concrete foundations, and the pitch filler used has proven satisfactory on all kinds of foundation.

One of the things on which the Akron authorities base their preference for pitch filler is a direct comparison of results on Main street. In 1891, Main street, north of Thornton, was paved with brick with pitch filler. Five years later, the adjoining section south of Thornton was paved with brick with cement filler. It would be logical to suppose that the pitch-filled section being five years older would wear out first. The reverse, however, is true and the cement filled section, as shown by the photograph, is in very inferior condition as compared with that where the pitch was used. The comparison is more than fair to the cement filler, as the pitch filled section is nearer the center of the city and received more traffic than the grouted section. Cement was used elsewhere in Akron about the same time, and the results were everywhere so disastrous that for the last ten years paving pitch has been used almost exclusively.

There are over 1,000,000 square yards of brick pavement in Akron, 90 per cent of which is filled with pitch filler. In addition to this there are several thousand yards of stone pavement, all of which has been filled with pitch filler.

The grade on these streets varies from less than 1 per cent to over 9 per cent, yet the pitch filler has been found well adapted to all conditions, keeping the foundation dry, and therefore firm, affording a good foothold to horses; and when necessary to take up the pavement for any reason, the work can be done without breaking the brick, and when properly relaid, it is impossible after a few weeks to tell where the pavement has been relaid.



Section of Main Street, Akron, Ohio, Brick Pavement with Pitch Filler, Used 20 Years, Still in Good Repair.

As Akron's experience with fillers has not been confined to pitch alone, the very large excess of pitch filler used over all other kinds has not been because of ignorance or lack of experience with other fillers.

During the year 1910 about 2,000,000 lbs. of paving pitch was used in the city, while plans for 1911 call for an additional large quantity.

In addition to the work done by the city authorities, quite an amount of paving has been laid by private concerns, especially in new allotments, in which pitch filler has been used in preference to any other. The largest private user of pitch filler in the city is the Street Railway & Light Co., in paving between tracks, as it can be used during either hot or cold weather with equal success and without delaying the operation of cars, or the blocking of the street to traffic while the filler is "setting."

## VALIDITY OF ORDINANCES IN APPROVAL OF BRICK.

A village ordinance relative to the paving of a street provided for a brick wearing surface, and that upon the sand cushion described should be placed a layer of repressed brick, either of a certain named make, or other brick equally good, to be approved by the board of local improvements; all of uniform dimensions, and in size four inches deep by three inches wide and eight and one-half inches long. It was contended that the ordinance was void because of the discretion given to the board of local improvements in the selection of the kind of brick to be used. But the supreme court of Illinois holds otherwise. It says, Village of Oak Park vs. Galt, 83 Northeastern Reporter, 209, that the discretion permitted by this ordinance to the board of local improvements was very limited in character, and the court thinks was a precaution as to the material to be used that would tend to benefit rather than to injure the property owner.

The court says that in City of Chicago vs. Singer, 202 Ill. 75, an ordinance provided the kind of brick that should be used, and required that sample brick should be presented with the bids, and "all brick used must be equal in every respect, to the specimen submitted by the bidders to the board of local improvements for test." This court, in discussing whether that ordinance was invalid because of the discretion left to the board of local improvements, said: "The board of local improvements were not clothed with power, by the subsequent provisions of the ordinance, to determine the kind of brick of which the pavement should be composed, but only to determine whether the brick which the bidders contemplated using were the kind and of the quality required by the ordinance to be laid in the pavement."

In Halsey vs. Town of Lake View, 188 Ill. 540, it was held that the ordinance in that case, which provided that the contractor should furnish samples of the articles and materials to be used in doing the work, and that the material furnished on the work must be equal, in all respects, to such samples, was not open to similar objection to the one raised here.

In Fishburn vs. City of Chicago, 171 Ill. 338, it was stated that an ordinance might be so framed as to make a production, substance, or compound the standard of quality and fitness, and require material to be equal to it in all respects.

## COUNCIL CHOOSES BRICK.

Although the property owners on Fifth street, Macon, Ga., petitioned the city council to use either granite blocks or asphalt in paving their thoroughfares, the council has decided to pave with vitrified brick.

## BRICK COSTS MORE IN FREEPORT.

A correspondent from Freeport, Ill., reports the following conditions: "On top of the freight rate raise for the transportation of brick, which amounted to 3 cents a square yard for paving brick, comes the announcement that the brick which sold last year for $12.25 per 1,000 will be furnished this year at $14.50. The advance of $2.25 per 1,000 means an additional cost of 10 cents per square yard. A good deal of paving work in Freeport is planned for this year and the high cost of brick will make a big difference in the estimates. As the situation is at present, no brick contractor will take a big contract for fear of some further change in price, and the brick market will not be settled for some time. Last year there was a raise in price of about $4.00."

## WILL MAKE PAVERS.

The Lyle Brick Co., at Kansas City, Mo., are making improvements and adding machinery to one of their plants at that place in order to make repressed paving brick. Several kilns have also been added.

## CHANGES IN PAVING CIRCLES.

The Murphysboro (Ill.) Paving Brick Co. has increased its capital stock from $100,000 to $130,000.

The Abingdon (Ill.) Paving Brick and Tile Company is making extensive plans for the summer. A reinforced concrete roof is being placed over the drier which is 45x70 feet, the waste heat system being used. A large force of men will be employed as a big summer's run is in view.

The Bessemer Limestone Company, Youngstown, Ohio, which manufactures paving brick and owns extensive limestone quarries, has made some changes in its organization. The position of chairman of the board of directors was created, and J. G. Butler, Jr., was elected to that office, retiring from the presidency after a service of 24 years. The resignations of C. S. Crook as treasurer and C. M. Crook as general manager were accepted. John Tod was elected president; C. C. Blair, general manager, and John A. Rowland, secretary and treasurer.

## OPEN WITH FIREWORKS.

There will be a general celebration by the citizens with a parade and fireworks at the formal opening of the Oakland (Cal.) Paving Brick Works, located at Decoto. The plant will keep about seventy men working both day and night.

## NEW ENGINE INSTALLED.

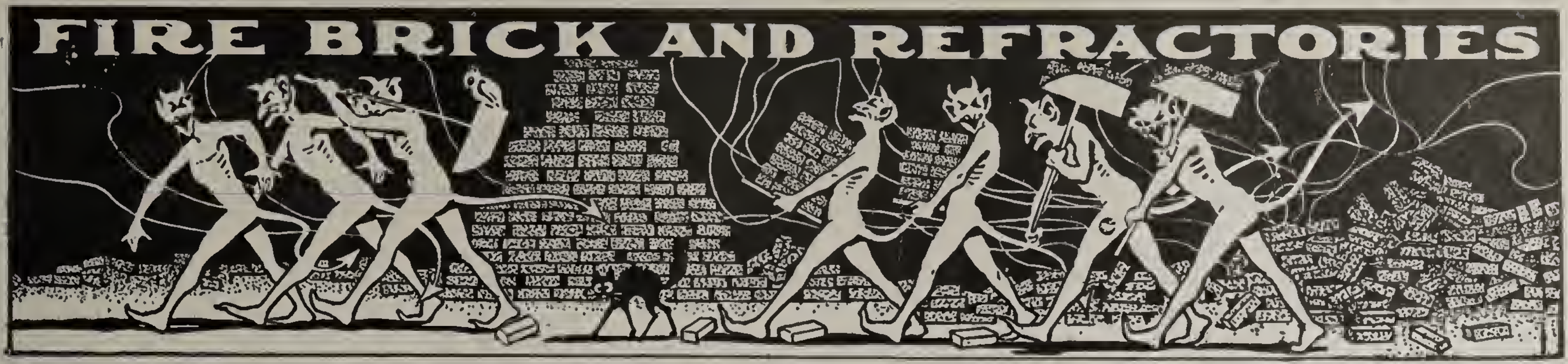
The Streator (Ill.) Paving Brick Company has installed a new Corliss engine. The new motive power is of the most improved type and will be used to operate the new machinery that is being installed.

## MUCH STREET WORK DONE IN WICHITA.

City Engineer Bert C. Well, of Wichita, Kansas, says that 1910 has been a banner year in public improvements in Wichita, and he doubts if any city of equal size—55,000 population—has done as much.

Brick did not get its full share of the work. But 3.13 miles were paved with brick at a cost of $128,899.42, out of a total of 20.8 miles paved at a cost of $1,018,989, but in 1911 20 miles of paving will be built, with 50 miles of sewerage, so that there is a chance for clay men to "get their oar in."

In view of this record, the city's motto, "Watch Wichita Win," goes without saying.



## THE MANUFACTURE AND TESTING OF FIRE-BRICK.

Paper read by A. V. Bleininger, Urbana, Ill., before the N. B. M. A. at Louisville.

All clay products designed to withstand high temperatures must be manufactured from the so-called fire clay, by which we mean those comparatively pure clays which do not soften at the temperatures involved. It is evident that there can be no sharp line of demarcation between the ordinary buff burning and the fire clays, but that they must gradually shade from one class into the other. It is obvious that red burning clays are necessarily excluded from this class of clays.

In order to differentiate between the various grades of refractory clays an arbitrary classification of clays might be adopted, in which several classes of fire clays are distinguished. No attempt has been made to establish with any degree of authority any such classification of fire clays, and the writer does not care at the present time to go into this subject beyond saying that a No. 1 fire clay should have a softening temperature not below that of cone 32, and in addition should still retain an open structure at this temperature, without any evidence of softening.

The greatest refractoriness is shown by pure kaolin, which corresponds to the composition: 47 per cent silica, 39 per cent alumina and 14 per cent chemical water. After burning, this changes to 54.7 per cent silica and 45.3 per cent alumina, all of the chemical water being expelled upon calcination. Refractories made from such kaolins would therefore show the greatest heat resisting power. However, any increase in the content of silica, or any introduction of titanic acid or of the fluxes will at once lower the refractoriness of the material. By the term fluxes we understand, of course, the iron, lime, magnesia and the alkalies.

The so-called melting point or softening temperature is but an unsatisfactory criterion of the real refractory value of a clay inasmuch as the viscosity of the mass softening at these high temperatures is so great that even inferior materials do not show the deformation which is necessary to indicate the failing point of the specimen which in the case of a cone is that position in which the apex of the cone touches the tile or other support. Clays, therefore, are very similar to quartz and orthoclase feldspar, minerals which have not been found to possess a definite melting point. Thus, while the determination of this softening temperature is valuable in differentiating between the various grades of clays it does not tell us anything definite as regards their standing up qualities under actual furnace conditions.

In order that a clay possess these qualities it is necessary not only that it be refractory, but also that it show a slow vitrification rate. It must not become dense at low temperatures. To illustrate: a fire clay which softens at say cone 32 but burns to a dense mass at cone 10, is not a first-class refractory. This characteristic is probably most readily determined by means of the water absorption and a curve bringing out this behavior could be readily obtained by burning a piece of clay at several temperatures from, say cone 4 to cone 20 and determining the weight of water absorbed, expressed in per cent, at these various temperatures. For a high grade fire clay this curve should be pretty nearly a straight line between the above temperature limits.

In summing up the qualifications of a high-grade fire clay, then, we might say, first, that it must show a softening temperature as usually determined above cone 32; secondly, it should show a chemical composition close to that of kaolin, i. e., as low in silica as possible, low in titanium oxide, iron oxide, lime, magnesia and the alkalies; third, it should show gradual vitrification and should not become dense at lower temperatures; fourth, it should show good standing up qualities as determined by subjecting a test piece or brick made from the clay in question to a load test at an average furnace temperature. At the laboratories of the Bureau of Standards these test conditions are a load of 50 pounds per square inch and a temperature of 1,350 degrees C. (2,462 deg. F.).

The process of the fusion of fire clay is usually not clearly understood. We must not only get away from the idea that clay has a well defined melting point but must also realize that fusion begins at an early stage of the burning, if fluxes are present. The more of the latter a clay contains the more will the vitrification temperature be depressed and at the same time the more will the clay soften at the lower temperatures, since vitrification is inseparable from softening. The higher the content of fluxes, therefore, the lower the temperature at which vitrification and softening begin, and the lower finally the temperature of complete softening and deformation. Thus, while a pure clay may not begin to become dense at cone 30, the addition of even 4 or 5 per cent of fluxes may lower the vitrification temperature by 10 or 15 cones. Hence, while in the former case the clay will be able to carry any reasonable load at the average furnace temperature in the latter the material will fail to do so.

With regard to the manufacture of fire brick we might consider this subject briefly from the standpoint of the mixing, preparation, molding, drying and burning.

The ideal fire clay would be a pure clay possessing sufficient, but not excessive plasticity, good working and drying qualities, low burning shrinkage and, of course, maximum refractoriness after burning. However, such a combination of qualities is difficult to find. The fire clays which are available are frequently clays of practically no plasticity and which cannot be worked alone. They show, of course, no drying shrinkage, but are often highly refractory since they correspond closely to the composition of the pure clay substance. Hence, while they are valuable on this account they are troublesome on account of their lack of working qualities and their high burning shrinkage. These clays are known as flint clays and form an important part of the clay resources of Pennsylvania, Ohio, Kentucky and Missouri. They vary in composition and qualities from locality to locality, and, hence, the term flint clay does not necessarily mean a high grade material. These clays, when mined, are quite hard, of dense conchoidal fracture, but after long storing become softer and show a slight increase in their working qualities. If ground very fine in a tube mill, especially in a wet condition, these clays could be made to develop sufficient plasticity to be made into bricks by the slop process.

Again, the fire clays may be clays of the so-called "set" type, which, though like flint clays in being nonplastic at first, are readily made plastic by ordinary fine grinding. The writer has seen such clays from Alabama, which could be manufactured into high-grade products since they have practically the composition of kaolin, and, hence, are exceedingly refractory.

The fire clays most frequently found are of the plastic type, but of inferior refractoriness, approaching more or less the No. 2 fibre clays in composition.

From what has been said it is quite evident that it is difficult to find a clay which in itself could constitute a good fire brick body. In most cases, therefore, we are compelled to produce a body consisting of flint clay and bond clay, mixed together in about the ratio of 6:1 for high grade products. In some cases the burning shrinkage of the flint clay is so high that part of it must be calcined or replaced by crushed old fire brick, called grog. As regards mixing the fire clay it might be said that it is of primary importance to study the formation and quality of every part of the clay deposit so that there is not the slightest doubt as to what part is of inferior or superior refractoriness. If a certain vein or streak is of low value it should be clearly recognized and rejected. On the other hand, if the low grade material is but small in quantity and cannot be plainly recognized it might be possible to render it more harmless by causing it to be mixed uniformly with the entire output of the clay mine so that the average content of the injurious clay is very low. This would mean, of course, a good-sized stock shed, which, by the way, would be an excellent investment for almost every fire brick plant.

As to the proportioning of the flint and plastic clays it might be said that this should be done by proper mechanical devices so that the desired amounts of the two clays are introduced at all times, thus resulting in a more uniform mixture. It usually is most desirable to mix the ground flint and bond clays.

The customary preparation of the clay mixture consists in dry pan grinding, screening and tempering in the wet pan. Where the bond clay is of good quality this treatment is amply sufficient, but where the quality of the product suffers by the use of an inferior plastic clay a different treatment might greatly improve the resultant quality of the brick. Owing to the fact that the breaking down of a fire brick is due to its least refractory constituent it is easily seen that the quality of the product may be improved by grinding the plastic clay with some of the flint clay to an intimate mixture which passes quite a fine mesh, say the 20 mesh screen. To illustrate, if a brick could be improved by grinding, say 20 per cent of the flint with the 15 per cent plastic to this fineness and using as the bond these 35 per cent of mixture. The writer has succeeded in improving by this treatment a fire brick which otherwise would have been of low quality. There are now many grinding machines on the market which could do this kind of fine grinding very cheaply and efficiently, and this suggestion might prove of considerable value to plants now struggling with the annoying bond clay problem.

Most of our fire brick are molded by the soft mud process, either by hand or machinery, and are frequently repressed. For most work this kind of brick is probably the best, though for certain purposes such as gas benches, etc., where the brick are subjected to the effects of high temperature and pressure the dry press process is to be preferred.

The drying offers, as a rule, no difficulty, however, and need not be considered in this connection. As regards the burning it might be said that the temperature should be carried as high as possible.

It is a well known fact that the burning shrinkage of a clay does not reach its limit with the first burning, but that some additional shrinkage takes place on re-burning, though in decreasing amounts. Although we are not able to burn fire brick so that no further shrinkage whatever takes place on heating, yet we should endeavor to carry the burning as far as possible. Underburnt fire brick are very undesirable for many purposes and the burning temperature should in no case be below cone 12. The idea that soft burned fire brick are as good as the harder burned is erroneous.

As to the testing of fire brick the subject might be considered under the heads of general and special tests. The former involve the questions of refractoriness, chemical analysis and load carrying ability. The latter depend upon the use to which the brick are to be subjected, involving the action of slag or glass, abrasion by ore; action of caustic lime at a red heat or any or other numerous factors.

Summarizing again the general tests for No. 1 fire brick it might be said that the brick should not soften below cone 32, should be as low in fluxes as possible, not over 0.20 RO expressed in chemical equivalents and should be able to carry a load of 50 lbs. per square inch at 1,350 degs. C., as practiced in the test used by the Bureau of Standards.

There are as yet no general requirements establishing clearly what properties constitute a No. 1 fire brick and how it differs from the No. 2 material, and the writer would suggest to the manufacturers of fire brick that it might be well to co-operate in setting down certain definitions along these lines, though naturally it is impossible to cover every case of the use of fire brick. This suggestion is made with the idea of benefiting primarily the manufacturer who, in many cases, is not receiving the equivalent of the value of his products and of putting a premium on quality. High grade brick should be paid for according to their quality.

This question is an important one as may be seen from the current articles in the metallurgical journals in which the question of refractories is constantly brought up. If any specifications are to be drawn up as is being demanded by the metallurgical engineers, let the movement start from the side of the manufacturers in order to avoid the danger of unjust demands on the part of the users which would work harm to the fire brick industry.

## PLANT CLOSED.

The plant of the Kiesel Fire Brick company, which has conducted business at Rochester, N. Y., the past fifteen years, is to be closed. The business will be moved to Haverhill, Mass., where the company has a large factory and the most of the members of the company live.

## A FINE RECORD.

A Pennsylvania paper states that owing to good material, prompt shipment and fair treatment, the Eureka (Pa.) Fire Brick Company, of Mt. Braddock, during the year 1910 increased their sales 51 per cent. over 1909, and in order to handle this additional business, were obliged to twice increase their capacity.

The plant is in full operation, and the indications point to a steady year's run.

# POTTERY NEWS

## EAST LIVERPOOL ITEMS.

The manufacturing of saggers by the machine method has been successfully tried by the East Liverpool Sagger Co., of which Alex McBane is president and general manager. The new method gives promise of being able to do away with, entirely, the making of saggers by hand.

Lovers of fine pottery find much to admire in a vase which has just recently been produced by R. Guy Cowan, director in charge of the Cleveland (O.) Technical High Schools. This vase which is now being exhibited is creating much favorable comment upon the character of work being done by the students of the ceramic department. It also proves that through technical education the industry can be lifted to a high plane.

This vase has an almost perfect iridescent crystalline glaze, which is an effect not heretofore produced upon domestic pottery. A series of experiments in glazes has been conducted for several months by Mr. Cowan in an effort to produce a perfect iridescent glaze.

Such a glaze was produced in Boston last year, so it is said, but at the Cleveland Technical schools those in charge of the ceramic department were able to go further and obtain the crystalline at the same time. Other pieces possessing a similar glaze are now in process of manufacture.

Report is current that ere the year ends, plans will mature for the establishment of a sanitary pottery at Sebring, O. It is also said that this is only one of a number of new plants that are to be erected at Sebring during the next few years.

Operations have started in full at the new Nelson McCoy pottery at Roseville, O., and a line of art ware and stoneware is being manufactured. This is the latest art pottery plant to be erected in the Western district.

An immense vein of pottery clay has just been discovered on the farm of A. L. Harris near Glasgow, Ky. A stock company is being formed to develop the property. Kentucky pottery clay is being sold among the pottery manufacturers of the east and west more than ever now.

News comes from Lancaster, O., that a movement is on foot there for the building of a new pottery. Pottery manufacturers from the Roseville, O., district are said to be interested in this new venture, and it is said they will be given a bonus for locating in Lancaster. It is reported that art pottery novelties and flower pots will be made in this new plant. David L. Melick is at the head of the movement at Lancaster.

Work on the additions to the plant of the Evansville Pottery Co., at Evansville, Ind., is nearing completion. The capacity of the property is being increased.

A full cargo of china clay, the first full cargo to be received this year, was recently unloaded at Boston, coming from England.

Anent the Canadian reciprocity bill, which had its inning during the last session of Congress, officials of the Robinson Clay Products Co., at Akron, O., declared the passage of the treaty would be beneficial to that industry.

The extra session of Congress which President Taft has called may be looked upon by the operative potters of the United States as one that will possibly create more business for their employers. The passage of the Canadian reciprocity measure means larger buying of American pottery and less buying of English lines. This statement is based upon the remark of one of the most noted pottery manufacturers in the west, who said:

"I do not think that the pottery workers of the United States have anything to fear should the reciprocity measure pass. There are several potteries in Canada, and they are all, so I understand, under the direction of the National Brotherhood of Operative Potters, so far as labor conditions are concerned. There is a tariff on imported pottery from England, and there is a tariff on pottery going into Canada from the United States.

"Wages of the English potter are considerably lower than those paid American workmen. The Englishman will not likely build a new plant in Canada in order to get a greater American market for his goods, for he would be compelled to pay a great deal more for manufacturing than he does now. On the other hand, the American potter manufacturer will find a greater market for his ware in Canada for the duty will be taken off.

"As I look at the situation, the Canadian has been buying American pottery for years, but in limited quantities, so to speak. In the buying of the English lines the Canadian jobbing house is working to as great disadvantage as is the American, for he has to wait months for his goods. In the buying of American ware, he can get a big order filled within a space of a few weeks, and would have his ware sold before the English manufacturer would start to book the business.

There is not likely to be any objections raised by the pottery manufacturers, so far as I'm able to learn, over the passage of the reciprocity measure, and, personally, I believe the manufacturers have all to gain and nothing to lose."

### Potters in Favor of Show.

An effort is to be made to have the annual meeting of the United States Potters' Association endorse a plan to create and make one mammoth working exhibit of American pottery at the first annual clay products show which is scheduled to be given in Chicago next February. It is learned that the display of pottery and American china which it is planned to make at the Chicago show will be larger than the display at either the Chicago or St. Louis world's fair. Over $25,000 has been raised within the last fortnight through stock subscriptions to boom the exhibits.

Not only will domestic pottery and china be given the place of honor in the show, but the Trenton tile and sanitary pottery manufacturers are to be called upon for a liberal display of their products. A generous exhibit of the new vitreous china which is being made by a pottery at Wheeling is to be asked for, this because of its difference in character from other lines. Sanitary ware from Wheeling, so far as it relates to the clay products, will also be sought.

From the Zanesville district the largest collection of American art pottery ever assembled is to be arranged. The fact that the exports of the American art pottery lines are increasing at such an enormous rate, the public as a rule has not been advised as to the true value of the American production.

The display of the products from Trenton is expected to be the most elaborate of the character ever arranged in this country, and the Trent Tile Company is expected to take the lead in this respect.

## SAND LIME IN 1909.

The U. S. Geological Survey have just issued its report of the statistics of the sand lime brick industry, for the year 1909, and while the figures seem a little late, yet they bring forth many facts of value and encouragement. The report says that the sand lime industry commenced in Michigan City, Ind., in 1901 and developed rapidly until 1907, when 94 operating plants reported an output value of $1,225,769, annually, which figures are the highest yet recorded for the industry, although it is probable that the figures for 1910 and 1911 will show a substantial increase in the total annual production.

The statistics for 1909 show a total value of production amounting to $1,150,580, Michigan being the largest producer with an annual production of $218,226. These statistics are based on the reports of only 74 active plants in operation, although since the figures were gathered there have been a number of additions to the list and it is probable that the operating plants in the country now exceed the total of those operating in 1907. New York State ranks second in the production of sand lime brick, with an annual output of almost $100,000. Florida ranks third.

According to these statistics the average price per M. received for common sand lime brick was $6.39, and for front brick $11.98 per M.

## MICHIGAN SAND-LIME NEWS.

In a recent communication a friend advises us of conditions in Michigan as follows:

Mr. Henry Schwalm, of Lansing, has purchased the Fremont, Ohio, Brick Co.'s equipment and moving it to a site which he has, about two miles south of Lansing, and intends running it to make sand lime brick in connection with his sand, gravel, block and cement brick business. He is having a siding put into his pit in order to facilitate the handling of his products and expects to have the plant running by mid-summer.

The Sebewaing Sandstone Brick Co.'s plant has been running all winter with good prospects in sight for this year's business; the Flint Sandstone Brick Co.'s plant expects to start soon, with very good prospects ahead; The Grande Brick Co.'s plant at Grand Rapids is running and has booked some very good orders and reports very good prospects for this year; The Saginaw Sandstone Brick Co. has purchased the sand from 120 acres near the city, and intends shipping it to their plant to prolong their sand hill and make a better product. They are putting in a sand conveyor and elevator to store sand enough to keep the factory running summer and winter. They started up their plant on the 16th of March for the year, and report very good prospects.

Some of the stockholders of the Saginaw and Grand Rapids plants, with Kalamazoo capital, have purchased a site in Kalamazoo within three-quarters of a mile of the center of the city, with G. R. & I., C. K. & S., L. S. & M. S. and M. C. R. R. connections to facilitate the handling of the raw and manufactured product with Grand Trunk R. R. within a block of the factory. They are now putting in a factory with a capacity of from 40,000 to 50,000 sand lime brick per day and expect to have it running within 90 days. The outlook in the building line in the state is very good, and if there is no set-back, there will be business enough for all the clay brick and sand-lime brick yards for the year.

## BRICK PLANT OPENED.

An industry which marks a step in the industrial growth of Oklahoma City is that of the Oklahoma Granite Brick Company, which began operations recently at its new plant at the intersection of the Katy and Rock Island tracks east of the city. The first brick which the plant turned out were for the use of the company in the construction of its plant, but the concern will be kept busy filling its many orders which it has booked.

More than $60,000 was expended in the construction of the plant, which is three stories in height. It is 90x133 feet and the exterior is in veneered brick, manufactured by the plant.

The concern will have a capacity of 40,000 brick a day. The company at the start, employs 22 men with a pay roll weekly of $250. The value of the weekly output is $1,350.

## A GOOD WORD FOR SAND-LIME.

The Buffalo Courier has to say the following in reference to the sand-lime industry:

"This product of latter day progress is coming so strongly to the front as one of the best modern building materials that we may point with pride to the fact that our local representative of the industry, the Buffalo Standstone Brick Co., of which Mr. R. F. Kreinheder is president, has obtained such a country-wide reputation for the excellence of its goods and the originality of its process, that manufacturers in this line are coming from all sections of the United States and Canada to see how it is done and profit thereby.

"The American Association of Manufacturers of Sand Lime Products, representing an investment of over $10,00,000, at its late annual meeting in Detroit, elected one of the Buffalo company as its secretary. As this officer receives and answers all questions of importance coming from members of the association this is still another honor to Buffalo. The Buffalo company increased its sale over 100 per cent in 1910 and prospects are that 1911 will show an equal increase."

## REBUILDING OF PLANT.

The Fremont (Neb.) Brick Co., which was again badly damaged by fire, have made repairs and are now as actively engaged as before the fire.

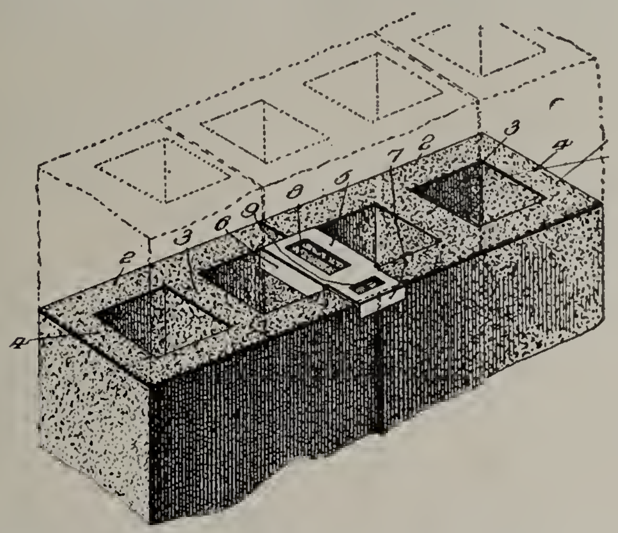
## SAND LIME ABROAD.

A writer in a Hartford, Conn., paper states that the manufacture of sand-lime brick has been carried on satisfactorily for a considerable period in Great Britain, especially in the Ruabon district of North Wales.

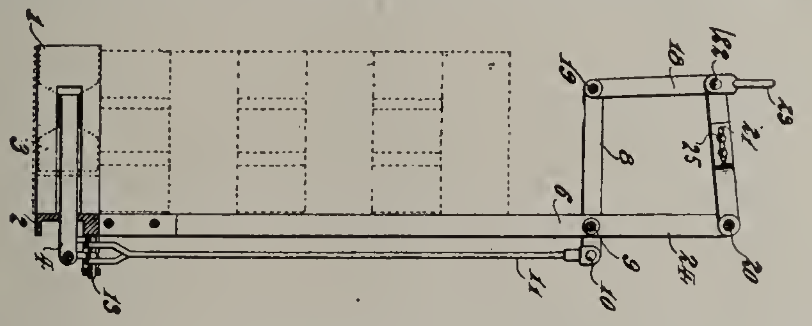
The establishing of a plant there, he says, usually costs about $10,000, and the brick can be put on the market there, owing to the low price of labor, at $4 per ton (2,240 lbs.), giving the manufacturer a very handsome profit.

# Recent Inventions of Interest to Clay Manufacturers

977,794—Bonding and tie plate for building blocks. George M. Griswold and Hugh C. Beagley, Kingman, Kan. Filed April 18, 1910. Serial No. 556,176. A tie plate for building blocks, one face of the plate being smooth, the other face having lateral wings projecting at right angles to the tie plate but of less length than the same, one end of the tie-plate beyond the wings having a transversely extending flange at right angles to the plate and projecting from the same face of the plate as the lateral wings, the other end of the tie plate terminating coincident with the adjacent ends of the lateral wings.

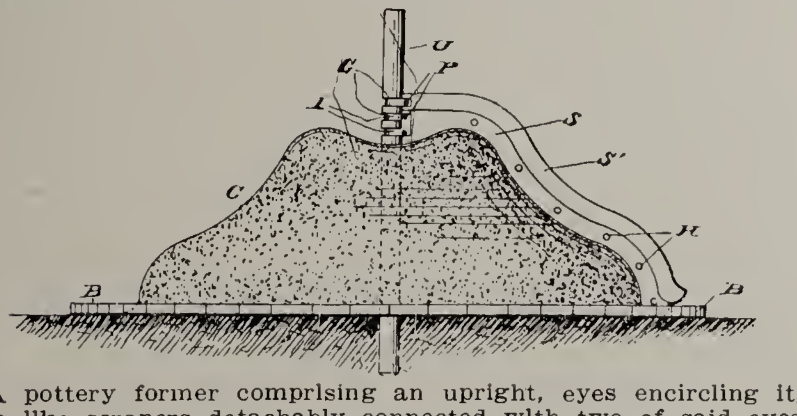


976,394—Machine for handling bricks. Raymond C. Penfield, New York, N. Y. Filed Jan. 19, 1909. Serial No. 473,067. A machine for handling bricks, comprising a vertically disposed frame, a horizontally projecting pivoted frame at the upper end thereof consisting of four interpivoted members, to which the lifting crane is adapted to be attached, and clamping means at the base of the frame actuated automatically by the initial lifting movement of the pivoted upper frame.



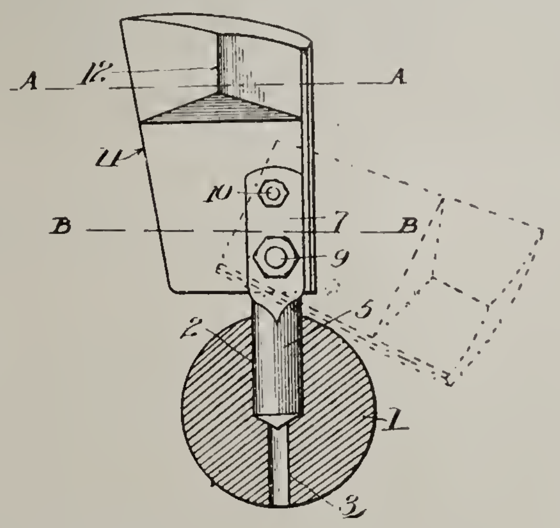
A machine for handling bricks, comprising a main frame having at its base a yoke partially surrounding a stack formation of bricks, a clamp for connecting the frame to the stack formation, and a pivoted frame at the upper end of the main frame for keeping the machine in proper equilibrium when loaded and unloaded, said pivoted frame consisting of four members, those opposite to each other being of unequal length, and a connection between said pivoted frame and the clamping mechanism, all ararnged so that the initial lifting movement actuates the clamp.

975,144—Pottery former. Thomas Lunn, Decatur, Ill. Filed Nov. 4, 1909. Serial No. 526,257. A pottery former comprising a rigid upright around which the material of the core is adapted to be piled, a scraper removably hinged to said upright and with its lower edge having the configuration it is desired to give the core and hence one side of the finished article, the scraper having holes through it for the purpose set forth, and a sweep removably hinged to said upright at a higher point and with its lower edge having the configuration it is desired to give the other side of the finished article.

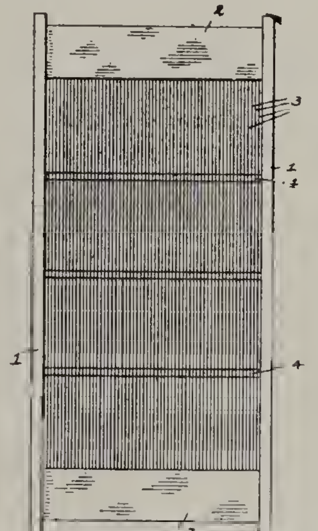


A pottery former comprising an upright, eyes encircling it, two like scrapers detachably connected with two of said eyes and adapted to swing in the same plane, the scrapers having transverse registering holes for the purpose set forth, and a sweep connected with another of said eyes and adapted to swing in a plane above the scrapers.

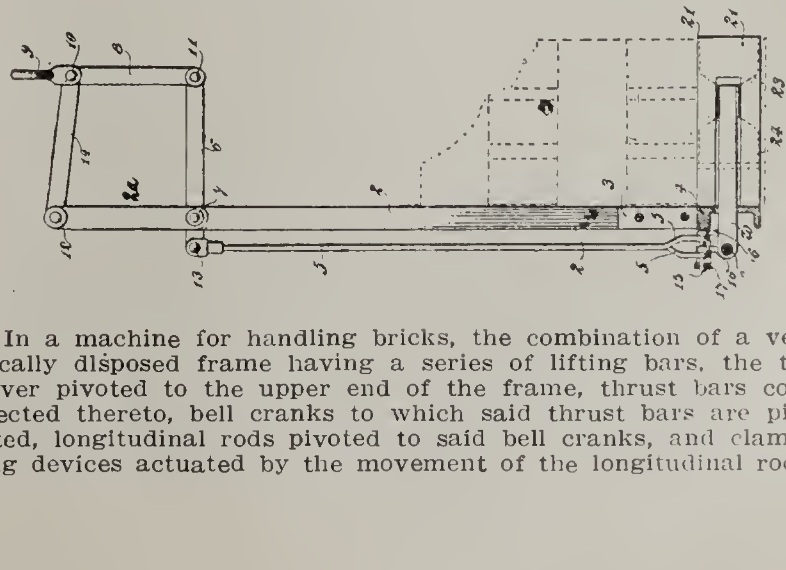
978,536—Clay tempering blade. Julius H. Bach, Chicago, Ill., assignor of two-thirds to the American Clay Machinery Co., Bucyrus, O., a corporation. Filed July 3, 1908. Serial No. 441,767. The combination with a shaft having an opening, of a tempering blade having a shank portion to fit said opening and having the outer main portion widened, said outer portion being substantially wedge shaped in cross section with the thickest portion at the rear, and having its outer extremity thickened to form a reinforce therefor, the thickest portion of the reinforce being at the center of said extremity and tapering from the center toward the back and front edges.



975,441—Screen. Douglas Lewis, Renton, Wash., assignor to the Ceramic Supply & Construction Co., Columbus, O., a corporation of Ohio. Filed Jan. 5, 1910. Serial No. 536,521. In a screen, the combination with a frame and a plurality of parallel wires extending between opposing members of said frame, of strips crossing the wires of said frame at intervals, said strips being soldered to said wires, and a filling of solder between the wires opposite said strips.



977,610—Device for handling bricks. Edward J. Fritsch, Willoughby, O., assignor to the American Clay Machinery Co., Bucyrus, O., a corporation of Ohio. Filed Oct. 15, 1908. Serial No. 457,840. In a machine for handling bricks, the combination of a vertical frame, a series of lifting bars at the base thereof, clamping plates arranged in connection with said bars, levers pivoted to said plates and to the bars, and means connecting the ends of the levers for simultaneously operating them.



In a machine for handling bricks, the combination of a vertically disposed frame having a series of lifting bars, the top lever pivoted to the upper end of the frame, thrust bars connected thereto, bell cranks to which said thrust bars are pivoted, longitudinal rods pivoted to said bell cranks, and clamping devices actuated by the movement of the longitudinal rods.

# TRADE REVIEW

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### THE SUNNY SOUTH.

New Orleans, La., March 25.—That business in the territory in and adjacent to New Orleans has not been up to the expectations of the brick manufacturers is the somewhat disappointing statement that must be made, for while with but one or two exceptions the various plants that maintain offices in the Crescent City have been working on full time since the new year began, yet the output has not been wholly disposed of, and but a few large contracts for brick have been let. Building has been lively enough, but New Orleans being essentially a city of wooden houses, the greater bulk of the building continues to be of that product, while commercial structures that cannot be constructed of the product of the forest are in as many cases reinforced concrete as brick.

There was an unusually large number of building permits issued in the office of the city engineer just before the close of 1910 and one would naturally expect a larger amount of building to be in process than is really taking place, but the explanation is simple. The new building code promulgated by the various city departments went into effect January 1, 1911, and of course as it imposed a number of restrictions that had hitherto not been deemed necessary, prospective builders, and in some cases those who did not have the least intention of building for a long time to come, secured permits under the old regulations and are still holding them for future use. In some cases these permits may never be used but it was deemed a safe move to have them in one's possession and it is always possible that some day a permit may come in handy.

The largest amount of brick contracted for will be used in city work, in the building of three new schools, and while each contract has been let to a separate bidder, the Salmen Brick and Lumber Co., whose plant is located in Slidell, La., and whose main offices are in New Orleans, secured the brick contract for all three of them, and will supply the brick used.

The Napoleon Ave. high school will use 1,500,000 brick and while this is not an extra large amount, it stands as the record contract let since the first of the year and the Salmen company feels considerably elated at having secured it over competing firms. The next largest amount of brick that has been contracted for is 1,200,000 that will be used in the Esplanade Ave. high school, which contract the Salmen people also secured; and the other school contracted for is the Walter C. Flower school, where 250,000 Salmen brick will be used.

They have also secured the contract for furnishing 1,000,000 brick for the plant of the newly organized Union Brewing Co., which is now in course of construction, and have already begun deliveries there.

Of course, smaller contracts have been let in the last three months which, when totalled, will amount to orders for considerable brick, and of these the plants along the lines of the Illinois Central and Yazoo & Mississippi Valley railroads, represented in some cases by the Mutual Brick and Supply Co. and some cases independent, have secured the bulk of the orders. The Mutual Brick and Supply Co., being simply a co-operative selling company operated by a number of plants, has, of course, apportioned the orders received by it among its owners, and thus where one or two plants may have been working overtime while others were idle, there have been a large number of plants working usual time, and none of them have been shut down for any length of time.

The H. Lindenberg Shoe Factory, for which the foundation work has just been started by F. L. Bixler, the contractor, will use in the neighborhood of 300,000 brick but up to this writing the firms have not been awarded the contract for that material, although bids are now in the contractor's hands. Richard McCarthy, the contractor for the new building for the Grant Furniture Co., which is to be a five-story brick affair of considerable width and depth, has also received bids for the 350,000 brick that will be required in its construction, but has not awarded the contract.

The city has discontinued brick paving to a great extent, for the report of the city engineer shows that whereas previous to 1905 there had been 138,300 sq. yds. of vitrified brick paving done on the city streets, but 10,021 sq. yds. of vitrified brick paving has been done since that time; and it may be added in passing, that the bulk of the 10,000 yards done was in repair work on pavements laid before 1905.

The Security Investment & Enterprise Corporation of Mound Bayou, Miss., of which Geo. L. Benjamin is president, is planning the establishment of a brick plant at that place, where the clay has been tested and found suitable for the production of clay products.

Mr. E. S. Broders of Monticello, Ga., is planning to establish a brick plant. Mr. B. Jordan of the same place is also contemplating the establishing of a plant for the manufacture of clay products.

Mr. R. Lee Parker has purchased the Concord brick yard at Natchez, Miss., for $10,000. The Concord brick yard and the Natchez brick yard will be consolidated under the management of A. G. Rickman. Both yards are working to their full capacity.

The Camden (Tenn.) Brick and Tile Co. has commenced operations. Brick and tiling will be manufactured.

J. E. Tarver and others have organized a company at Augusta, Ga., with a capital of $75,000 for the purpose of establishing a brick plant with a capacity of 1,000,000 brick per day.

The Georgia Brick Co., Athens, Ga., have amended their charter, increasing their capital to $200,000.

The Sumter (S. C.) Brick Works has incorporated with $20,000 capital stock, to operate a brick plant with a daily capacity of 60,000 brick. The officers are: J. A. Ryttenberg, president and treasurer; John P. Maurer, secretary and manager.

H. H. Kirkpatrick, C. H. Sulzner, J. Austin Hall and others are interested in the establishment of a brick plant at Miami, Fla., with a daily capacity of 12,000 to 15,000 brick, to cost about $20,000.

The Uniontown (Ky.) Brick and Tile Co. will add special machinery at their plant for the manufacture of tile and roofing shingles.

Mr. W. Mercer Morris of Columbus, Ga., has bought the plant of the Riverside (Ga.) Brick Co. and will operate the plant under the same corporate name. An additional dry kiln will be installed and the capacity of the plant increased to 60,000 brick per day. O. B. Morris of Macon, Ga., will be in charge of the plant. The Riverside Brick Co. has a bed of excellent clay and will continue the manufacture of red brick, although on a substantially larger scale. Mr. W. M. Morris is also a stockholder in the Southern Brick and Tile Co. at Columbus, of which he is the manager.

The Nabring Tile and Brick Works is a new industry at Tullahoma, Tenn.

The Greenville (N. C.) Brick Mfg. Co. are to furnish the brick for the gigantic Westervelt Mills at that place.

A large modern brick manufacturing plant is to be erected at Marshall, La. Fifteen acres of clay land adjoining the tracks of the Texas & Pacific Railway in the northern portion of the city have been purchased. Preliminary work will at once begin on the plant and it is to be rushed to completion.

The Barbourville (Ky.) Brick and Tile Co. has begun the installation of new machinery and a remodeling of the present plant, which will double the capacity.

Lewis Minor and associates of Birmingham, Ala., are interested in the establishment of a terra cotta sewer pipe plant to be erected near Boyles.

The Oxford (Miss.) Brick and Tile Co. has been bought by J. L. Shinault & Sons.

The Harrisburg (Ark.) Tile Co. hase leased its tile plant to James Floyd & Son, who have overhauled the plant and will make tile during the season.

It is reported that there is a famine of brick at Atlanta, Ga., and the price has already advanced 75 cents to $1 a thousand, with no immediate prospects of betterment. Brick men expect a revival of the big season of 1906.

The demand and the resulting scarcity is attributed to the great building activity in January, when the weather was open, and to the large amount of public work, such as various schools and sewer work. Of the bond issue, probably over $1,000,000 is devoted to brick required in construction work.

It is said the usual surplus at the yards has been exhausted and manufacturers and dealers are calling on outside points for supplies and prorating what they have among their customers to ease the demand.

The Sibley-Menge Brick and Coal Co., Birmingham, Ala., have increased their capital stock to $300,000. The increased capital thus provided will be used in the development of the properties of the company.

Brick from Gainesville, Ga., are in demand over the country and the company says they have orders ahead for about all the brick their kilns can turn out.

The Oliver Spring (Tenn.) Brick and Tile Co.'s plant has resumed work after being closed down for several months. It is understood that many orders are on hand waiting to be filled. This company manufactures fire brick for all purposes.

S. B. Brown and C. M. Shackleford have purchased the stock of the Flint River Brick Co., formerly owned by N. J. Cruger and W. W. Pace at Albany, Ga.

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## KANSAS CITY.

Kansas City, March 25.—The brick market in this city is good, and is steadily growing better. There will be no trouble for the contractors to take care of all the brick they can get hold of for the next three months, but there may be a good deal of trouble for them to get all they want. Dealers report that the price of brick has advanced already $1.00 per M., and that they are now selling for $6.50 per M. on board cars. Dealers are of opinion the price will be a dollar higher before the spring rush is over, but of course this is merely a question of supply and demand, and the price will be regulated to a great extent by what comes in from the outside plants.

The local plants are going to be operated to their full capacity this year, and nearly all of them are now making brick. The latter part of the winter has been fine for getting things in shape and starting up these plants and they are in condition to make a fine long run. The gas company says it will have plenty of gas for the brick plants again this summer, as its big demand from small consumers is over until next winter.

The work of excavating for the new Union depot is progressing more rapidly than ever, two steam shovels being busy all the time, and the foundations are expected to be begun about July. Much building is to be done in this section of the city, to be completed by the time the depot is ready, and a great deal of building is already in progress in that section. There is also sure to be a large amount of building in the section from which the depot will be moved, as the retail district will be done away with and wholesale houses will probably fill the pace.

There is much interest at the present time in the new boat line, as the company will have a couple of modern boats this year, with a string of barges, and will be able to handle considerable tonnage. Such brick plants as are located along the Missouri and Mississippi rivers, and possibly the Ohio, where they can load on barges, will be in a position to lay brick down in Kansas City at a low cost of freight, and there is a possibility of considerable business in this direction, but only the few plants would be able to profit by it, as brick once loaded on a car could not be transferred to the boat line with profit, on account of the cost of handling.

According to information received from the Kansas and Oklahoma field there will be a big production there this season, as the demand was so good throughout the past winter that it has encouraged the manufacturers. Of course this demand was not stronger than usual, but only the plants lucky enough to have plenty of water were able to continue to produce, and this made a better market for those who did operate regularly. It also caused a good clean market for this string, so practically all the brick used this summer must be made, there being no surplus on hand in the territory. Plants have generally been thoroughly overhauled, and are in condition to turn out more brick than formerly at a less expense, and those under good management, with careful hands in charge of the selling end of the business should declare some good dividends at the close of the coming season.

Paving brick are in extremely strong demand, and there is no danger of a surplus in this direction. All plants making paving brick of quality are well loaded down with orders at the present time, and see plenty of business ahead. One feature of the paving brick end of the business which is encouraging is, the fact that city officials are awakening to the fact that they must make their arrangements earlier than they formerly did, thus giving the brick companies more time to make delivery. They have found from past experience that they cannot dally along all summer and then award the contracts in the fall and get any paving done that year.

The demand for face brick is steady, with a plentiful supply at steady prices, there being quite a tendency towards the usual designs. People here want to build distinctive buildings, and they are looking for something in the way of face brick which are different from those used in neighboring houses.

A. C. Baird, formerly secretary of the Kansas City Hydraulic Press Brick Co., has engaged in the brick jobbing business on his own account, and will be an active figure in this market in the future, as he has many friends among the contractors, and will undoubtedly get some good business for such companies as he may represent.

Tom Green, of the Sioux City Brick & Tile Co., Sioux City, Ia., passed through the city recently on a visit to the South.

Thomas Eadie, of the Eadie Building Supply Co., has returned from a very delightful pleasure trip in Southern California, and found that his house had been enjoying a fine business during his absence.

The Kansas Buff Brick & Mfg. Co., of Buff City, Kan., has opened an office in the Reliance building, and will be pushing for Kansas City business harder than ever before.

The Standard Brick Co. is building a new sand-lime brick plant at Leeds, Mo., a suburb of this city, where it has secured some valuable concessions and is preparing to turn out an article of merit.

The Kansas City Terra Cotta Co., which has opened its plant at Nineteenth and Manchester and Cookson avenues, has its offices at 1012 Baltimore Ave., and is turning out something attractive in the terra cotta line, being the only plant of the kind in Kansas City, Mo.

The Pawhuska Vitrified Brick & Tile Co., of Pawhuska, Okla., which is now making common, face and paving brick, expects to put in machinery for tile manufacture within a short time.

The Nicholson Brick Co. is about to begin the construction of a brick plant at Pawhuska, Okla.

The Columbus (Kan.) Tile & Brick Co., of which E. D. Whiteside is general manager, has bought the plant of the Columbus Vitrified Brick & Tile Co., and are refitting and equipping it. They are making draintile and expect to make brick by April 1st, with especial attention to dry press and paving brick. The officers of the company are: L. J. Slease, president; Geo. Hood, vice-president; M. A. Householder, treasurer, and C. F. Baldwin, secretary.

A fire in the carpenter and machine shops and storeroom of the Arkansas Brick Co's. plant at Little Rock, Ark., caused a loss of $15,000. The plant, however, is working as usual.

The Paola (Kan.) Brick & Tile Works has spent several thousands of dollars in remodeling its works and expect to make a carload of vitrified brick each day.

The officers of the Union Brick Co. for the coming year were elected as follows: G. M. Shanton, president; J. A. Clayton, vice-president; Fred Fleming, secretary and treasurer.

The Choctaw Brick & Gas Co., Ft. Smith, Ark., elected the following officers for the coming year: W. O. Caldwell, president; C. W. Jones, vice-president; P. A. Ball, treasurer; H. B. Salls, secretary.

The city of Bronson, Kan., which was almost wiped out by fire a year ago, has been almost entirely rebuilt with solid, substantial brick buildings.

The Chanute (Kan.) Brick & Tile Co. has resumed operations, since the recent rainstorm has replenished their water supply.

The Ft. Scott (Kan.) Brick Co., which has had a stormy existence, being forced into bankruptcy a year ago, has been taken over by a corporation with Kenneth Calhoun as president; W. Rice Gunn, vice-president; W. J. Smith, secretary; W. C. Gunn, treasurer, and D. P. Thomas, general manager. The plant will be operated more extensively than heretofore. The consideration for the transfer was $80,000. Extensive additions will be built and the machinery overhauled.

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## TEXAS AND THE SOUTHWEST.

Austin, Texas, March 28.—The building situation in Texas at this time is highly favorable to the brick trade. It is claimed by architects and contractors that in the cities and towns of the state more brick building construction is now in progress and in prospect for the near future than ever known. The class of business blocks are larger and of a more substantial character than the older ones. It is a noticeable fact that the quality of brick used in the new buildings is, generally speaking, more attractive than that in the older structures.

The demand for pavers shows a considerable increase over this time a year ago. Recent contracts have been let in several cities and towns of the state for paving considerable stretches of streets with brick and tentative propositions of a similar nature are on foot in other places.

In south and west Texas new town building is going on with wonderful rapidity. Many ranches are being divided into farms and one of the first moves that promoters of these colonization enterprises usually makes is to lay out a site for a town and begin the construction of substantial business buildings and residences. So fast are these towns springing up that the map of the former ranch region is changing with almost kaleidoscopic rapidity. Places in the former ranch region that were unsettled a year ago are now teeming with life and human activities. Towns which range in population from a few hundred to two or three thousand people have sprung up, and in their appearance they do not show the mushroom growth that is usually characteristic of boom towns in the west. In most instances these new Texas towns spring full-fledged into being. They are equipped with all modern public utilities, substantial buildings line the streets and to all appearances they are built to stay.

The prospective erection of several large sugar mills in the lower Rio Grande valley is creating a considerable demand for brick. At Harlingen, Lon C. Hill and associates will erect a 400-ton sugar mill to cost about $800,000. Mr. Hill owns a brick plant at Harlingen and he is now burning 500,000 brick for use in constructing the buildings of the proposed sugar mill. At San Benito, where a sugar mill to cost about $1,000,000 will be erected by Alba Heywood and associates, the brick plant is also burning brick for the proposed structure.

C. C. Frampton and H. A. Clapp are promoting the organization of a company at Corpus Christi to erect a large brick manufacturing plant near that place. A large bed of brick-making clay was recently discovered near Corpus Christi. The samples which were tested gave splendid results.

The revolutionary troubles in Mexico have done serious harm to the building trades of that country. The demand for brick has fallen off at all of the factories, according to reports received here. One of the largest brick-making plants in that country is that of the Monterey Brick Manufacturing Co. at Monterey. It was established more than fifteen years ago by Colonel J. A. Robertson, an American who makes his home in that city. It supplied the trade of all of northern and central Mexico for several years and is still doing a very large business, despite the revolutionary troubles.

The Avant brick plant at Tulsa, Okla., is now being erected and a large force of men are employed. This plant, when finished, will be one of the largest in that section of the country.

The Elgin Pressed Brick Co., Ft. Worth, Tex., has renewed its charter for 30 years.

The Oriental Vitrified Brick Co. has been organized at Lugert, Okla., with a capital stock of $60,000. The directors are: E. J. Duperee, J. F. St. Claire and P. S. St. Claire of Oklahoma City.

The Greenville Brick Co. has been incorporated with $20,000 capital stock by S. A. Noble, Melvin Kimbough and W. H. James at Greenville, Tex.

C. E. Brandisch has completed negotiations for the lease of the plant of the Brownsville Brick and Tile Co. and announces that he will soon operate the plant for the manufacture of brick and tile under the name of the C. E. Brandisch Drain Tile Co.

The plant of the Gulf Coast Brick and Tile Company, at Brownsville, Texas, is to be greatly enlarged by the installation of machinery and equipment for the manufacture of hollow building block and drain tile. The contract for the necessary machinery has been placed with the American Clay Machinery Co., Bucyrus, Ohio. Experiments that have been made with the clay from which it is purposed to manufacture these block and tile show that it is splendidly suited for the work. The company owns a large deposit of the clay. The capacity of the tile-making department of the plant will be sufficiently large to supply the drainage needs of the whole lower Rio Grande valley and the Gulf coast region of Texas. Irrigationists in those portions of the state are becoming greatly interested in underground drainage and it is anticipated by the company that the demand for the tile will be large from the very start. In the localities where this character of drainage has been tried in the valley section wonderful success has been attained in keeping the land in fine shape and in producing abundant crops. It is claimed that by means of the underground tile the alkali that underlies the land and is brought to the surface by irrigation is drained off and is thus prevented from doing injury to the surface soil. The demand for the campany's hollow tile building block also promises to be large. An enormous amount of building is constantly in progress in this part of the state and in many of the structures it will be possible to use these block to great advantage, it is claimed.

The Garrison (Tex.) Pressed Brick Co. was recently organized and will establish a plant to manufacture face brick.

The foundations and piers for the new plant of the Houston Brick and Tile Company, near the foot of Race street, are in, and the presses will be in operation by late spring or early summer. The entire plant will cover from four to five acres and will have a capacity of about 60,000 brick per day, or approximately 1,000,000 brick per month.

The Memphis (Tex.) Pressed Brick Co. has been incorporated with $50,000 capital by J. S. Cobb, J. W. Massey and J. W. Greenwood. A plant will be established to manufacture brick, with a capacity of 20,000 brick daily.

C. R. Ball, of Plainview, Tex., is interested in a plan to establish a plant for manufacturing subirrigation tile.

A. C. Free, the head of the Okmulgee (Okla.) Brick Company, and one of the best known and most popular young business men of Okmulgee, died recently of heart failure.

## MICHIGAN NEWS.

Detroit, Mich., March 28.—With the advent of spring, Detroit and Michigan brick manufacturers are being rushed with orders. The demand has grown wonderfully during the past two or three weeks, and it gives promise of growing still stronger through the early weeks of the spring months. The demand is for all kinds of brick, but producers of the common clay products and sand lime brick manufacturers seem to be kept exceptionally busy.

A number of Michigan manufacturers of paving brick have closed their plants for the season, and they report one of the best seasons in their history. In the Saginaw district, plants of this class were kept running continually throughout the winter, and the prices received were much in advance of last winter's contract prices. In the Lansing district, plants are still operating, while manufacturers of common clay report an extraordinary demand.

Clippert & Spaulding, operators of an extensive plant just to the east of Lansing, have been running continuously for some time, and this firm reports that it anticipates a greater demand in 1911 than ever before. Building operations in the district are being rushed, and will continue with greater force when the spring and summer season opens up.

In Grand Rapids, contractors are preparing for an excellent season. The Detroit correspondent of Brick and Clay Record was in Grand Rapids and other state cities during the past month, and interviews with different contractors brought out the fact that 1911 is generally expected to be the greatest building year in the history of Michigan. In Detroit, a number of manufacturers have given notice that they anticipate opening new beds of clay during the spring and summer, and a number of firms will construct additions to their plants.

Detroit contractors have been notified, during the month, of a number of new concerns that are planning to build plants in the city. "Detroit, like Chicago, is a city of clay," says one of the prominent local contractors, and, naturally, brick will enter largely into the construction work.

One important announcement of the month is that of the Studebaker interests, of South Bend, that announce they will erect in Detroit the largest motor car manufacturing plant in the world.

John Scott & Co., of Detroit, will erect the second largest ice-making plant in the state; the Chicago Pneumatic Tool Co. is preparing plans and specifications for improvements in its Detroit plant; the Detroit & Suburban Gas Co. will erect a new generator building; the Arctic Ice Cream Co. will erect a modern plant, costing $15,000 or $20,000; the Michigan United Railways Co., of Jackson, plans to erect a number of power stations in different parts of Central Michigan during the coming summer, and is already having plans and specifications prepared; the Newaygo Engineering Co., and the Henry Rowe Co., of the same town, are planning to build new plants; the Seitz Automobile & Transmission Co., of Wyandotte, is completing work on a new brick plant, costing approximately $50,000; the Acheson-Oilday Co., of Port Huron, is planning to erect a new plant, the present factory having become too cramped; the Kellogg Toasted Corn Flake Co., of Battle Creek, will erect a new brick and re-enforced concrete factory building, 65x150 ft., five stories high; Lowrie & Robinson, of Detroit, will erect a modern brick and re-enforced factory building this spring; the Wilder-Strong Implement Co., of Monroe, will rebuild its plant recently destroyed by fire; Hastings will erect a new water power and lighting plant, costing $125,000; the W. A. Forbes Co., of Caro, will enlarge its plant; the Bainton Electric Steel Co., of Buchanan, is preparing to erect a plant; the Kawneer Mfg. Co., of Niles, will erect a new plant, having a total floor space of 66,300 sq. ft.; construction work on Holy Redeemer hall, a building costing $125,000, is being finished. The structure is located in the western part of Detroit, and is built almost entirely of brick.

"Business seems to be stronger than it was a month or three weeks ago," said George H. Clippert & Bro. "Our plant is operating steadily, and we anticipate it will continue to do so for some weeks to come. The building season in Detroit will undoubtedly be a great one. In fact, February returns show this city to have made one of the most remarkable gains of any city in the country."

"There has been an increasing demand for brick through the past month, and we anticipate a still better trade during the spring," said Burke Bros. "The building season in Detroit will be continued through several months, and will likely be a record-breaker."

The Detroit Vitrified Brick Co. reported an excellent demand for its product.

The Peerless Pressed Brick Co. has been kept busy for some months, and members of the concern say the demand will likely continue in increasing volume through the spring and summer months.

The Robinson Clay Products Co. reports a good demand for materials.

The Church Brick Co., operating a sand-lime brick plant at Sibley, 15 miles below Detroit, reports a very active demand for its product, and in all likelihood the firm will experience a banner year.

The Schneider Brick Co. is quite satisfied with conditions, and it reports prices unchanged.

The Detroit Face Brick Co. reports an abundance of orders.

Detroit and Michigan manufactures of pottery have been interested in finds of "relics," said to have been made in mounds near Detroit during the past few years, and especially during the past few months. These relics consist largely of pottery. The finders claim they are a survival from perhaps prehistoric ages, and undoubtedly are thousands of years old. Others view it with some "hesitancy" and say it may be the work of the "lost tribe of Israel." However, it has been denounced by archaeologists, who pronounce them "fakes." An interesting discussion of the matter is now being conducted in the Detroit papers.

## OUR EASTERN LETTER.

New York, March 27.—The Hudson river common brick market developed remarkable strength within the last two weeks. Sales for the six days preceding March 18 totalled 32 cargoes or approximately 11,100,000 brick, and 33 cargoes or 11,475,000 for the week ending March 11, as compared with total sales of only 1,500,000 during the week ending March 4 and 2,525,000 brick during the week ending February 25. The gradual increase in arrivals ranged from none during the two weeks ending March 4 to 42 cargoes, or 15,750,000 brick during the week ending February 11 and 27 cargoes or 10,125,000 brick during the week ending March 18.

Prices to dealers in this market have fluctuated widely, in consequence of this change in supply and demand, but adversely. In other words, when, on March 4, there was not a single boat load of common Hudson river brick for sale in the open market, the price was $5.50 to $5.62½ with quotations on the ten remaining covered barges held for contracts at $5.75, which price, by the way, was very hard to get. During the week ending March 13, when the river was opened to navigation as far as Haverstraw, prices dropped to $5.00 and $5.50 per M. and during the week ending March 20, when the boats had free access to any port from New York to Albany, the price went to $5.12½ to $5.38½, with $5.50 top for very special brick. This was a firm market because there was only one covered bargeload left in the market.

### No Attempt to Flood the Market.

With approximately 300,000,000 brick in sheds up the river, it was fully believed by dealers and many agents in this city, that manufacturers would try to unload as soon as navigation opened, inasmuch as there is no restraining influence since the dissolution of the Hudson River Brick Manufacturers' Association. This, however, has not been the case, so far. The district clubs are partly responsible for this, but it is more especially attributable to the close study of the New York market conditions which manufacturers have been making since the first of the year. The conditions here are quite unusual, and until they are remedied, it would be suicidal for manufacturers up the river to disregard demand and make indiscriminate shipments.

### Building Interests Gaining Confidence.

A survey of the building conditions in the Metropolitan district is not possible, with any degree of accuracy unless the whole building material market can be brought into the range of vision.

It has been shown that the demand for common brick has developed remarkably within the last fortnight. Most of the building materials being taken in this city are now going into commercial structures, in Manhattan, Newark, N. J.., and Queens, although, of course, on a reduced scale, in the latter instance. This type of construction is superseding, temporarily, apartment-house work of the 12-story fireproof type. Five-story tenements, which have not been in demand for half a decade are again coming forward as a conspicuous field for construction. New building rulings in Queens are responsible for an increased number of semi-fireproof, known as slow burning dwellings.

All these structures require large quantities of common brick. Even in suburban speculative dwelling construction there is a remarkable tendency to hark back to common brick for foundations, instead of concrete blocks, owing to the impossibility of making dry cellars of unwaterproofed cement forms. Owners are beginning to realize that if they go to the expense of putting a water curtain outside of their concrete blocks and then waterproof the interior, the cost will exceed that required for a brick foundation wall.

### Trying to Solve the Selling Problem.

At a meeting of the Hudson river brick manufacturers, held March 23rd at the Holland House, Fishkill Landing, for the purpose of forming an organization, representatives of some of the big companies stated that owing to the prevailing low prices they would not run their plants this year, following the policy of steel, lumber, tobacco and cotton producers who will curtail their production in 1911.

It was stated that some large producers were not interested in the proposed organization, because they had decided to shut down this year, in order to let the demand catch up with the supply. It is thought that not more than 10 per cent of them will operate at full capacity, as there is no profit when prices fall below $5.25 M. at dock, New York. The quotations last winter generally fell below $5.00. The next meeting will be held April 1st to perfect the organization.

The Hudson river brick manufacturers, as a whole, believe that some sort of an organization is needed, based upon modern principles and designed to meet modern selling conditions. The Hudson River Brick Manufacturers' Association, which went out of existence some time ago, did not meet the views of all members and in consequence its support was somewhat weak during the latter part of its existence.

The meeting at Fishkill Landing was designed to interest the manufacturers on the west bank of the river. For a long time John B. Rose, who is one of the largest manufacturers along the river, refused to enter any organization, except such organization be based upon certain principles which he believed to be the only correct ones.

The attempt to effect such an organization was made some time ago by Senator Edwin Brackett, through his partner, A. B. Wheat. The fact that this plan was designed to eliminate, to some extent at least, the agents representing the manufacturers in the market in favor of a general selling agency for all companies, did not meet with the complete approval of some of the largest producers. Legal advice, it was said, intimated a possibility of running afoul of the Sherman Anti-Trust Law if a plan were adopted that in any way sought to regulate prices.

The plan suggested by the present prime movers in the enterprise is still a secret pending certain modifications. It is said to involve a general agency proposition, but instead of entirely eliminating the agent, it will increase his efficiency by supporting his quotation to his customer.

### One Place for Overcoming Problem.

The necessity for an association of Hudson river brick manufacturers is to correct the present unstable marketing conditions. The agent is handicapped by indiscriminate shipments on the part of some manufacturers who send brick in with instructions to hold it for a certain price regardless of demand. Suddenly the manufacturer may want his barge or have some good reason for unloading and instruct his agent to sell for what he can get. In consequence that bargeload and possibly others will move out to the dealer at a price far below profit margin.

Some way must be found for controlling this supply. The difficulty is in finding an equal footing for the independent manufacturer and the operator of a leased yard who is obliged to ship so many brick a year regardless of market conditions in order to meet his rent or royalty.

### General Trade News.

Fiske & Co., makers of Tapestry brick, will move from the Flatiron building to 40 West 32nd St. on or about May 1. This will also be the new office of the Building Brick Association of America in New York.

The National Fireproofing Co., Flatiron building, is publishing a monthly paper, entitled "Building Progress," which contains some interesting reading matter on the subject of fireproofing.

Trenton Potteries Co., A. K. Aitken.—"We expect 1911 business to be good and our present year so far shows an increase over 1910, which was one of the best years in the business. We are continually extending and making improvements in our plant, and are at present busy with the erection of a four-story building at our Equitable Pottery, which will greatly increase the output of bath tubs; in fact, will almost double our present capacity."

Architectural terra cotta companies heard this week that practically the entire four facades of the Woolworth building, which will be the tallest inhabited structure in the world, reaching almost sixty stories in height, will be of architectural terra cotta, probably of cream matt glaze. This will be the biggest architectural terra cotta contract ever let. Prices will doubtless be cut considerably, owing to the advertising possibilities in such a big job.

Federal Terra Cotta Co.—"This company is following a conservative policy, partly owing to the slackness in building operations. Recent contracts taken by this company include the power house for the state capitol and educational building, Albany; the New Empire Theater, Baltimore; Hotel Taft, New Haven, Conn., which will be solid matt glaze terra cotta front for the entire twenty stories, and St. Matthews church, Washington, D. C."

Brick manufacturers along the Hudson river have made no provisions for reopening their yards up to date.

DeNoyelles Brick Co.—Frank DeNoyelles, a member of the DeNoyelles brick making family, while in this city recently, said that he felt that local conditions would improve before long. Speaking of his dredge equipment at his Haverstraw plant, he said that, contrary to expectations, he thought his company would be able to make brick from the clay taken direct from the river bed and that it would not be necessary to let it season for a year before using. This, he said, will mean a large saving in labor.

The Catskill Shale Brick, Kingston, N. Y., plant will not resume the manufacture of shale brick this season.

The Chestnut Ridge White Brick Co., at Manhattan, has been incorporated and has a capital stock of $100,000. The incorporators are J. G. Beemer, A. Petit, H. B. Calver. The company is to manufacture and deal in brick, stone, terra cotta, etc.

The property of the Vulcan Brick Co., situated just north of Athens, N. Y., has been sold by the trustee, O. G. Porter, to Nathan Gladselter, of White Plains, for $47,608. The plant, which has been idle since last fall, will probably resume work in the spring.

A petition in bankruptcy has been filed against George J. Hoffman, brick manufacturer, at Stuyvesant, Columbia county, N. Y.

The Monroe Unit Brick & Tile Co., of Monroe, N. Y., has been incorporated and has a capital stock of $30,000. The directors are C. S. Knight, F. F. Griffin, M. O. Schaefer, Emily Frey, J. J. Miller, and J. H. Carpenter and R. L. Davis.

The Troy (N. Y.) Brick Co. elected the following directors for the ensuing year: Jas. K. Pine, H. G. Northrup, Arthur B. Cobden, T. F. Morrissey, Jas. J. Child, Frank H. Wager, Steven Comisky and Gilbert H. Williams.

The local brick manufacturing plants at Mechanicville, which have a combined daily capacity of nearly 400,000 building brick, are preparing for an early spring opening. The Champlain Brick Co. has been operating its yard during the entire winter and The Duffney Co. started their plant recently. The New England Brick and the Mechanicville S. S. Brick Co. have also fallen in line. The brick manufacturing industry at Mechanicville has grown to such proportions that it is considered one of the principal industries of the village and gives employment to nearly 400 men, with a weekly pay-roll amounting to about $5,000.

## THE CITY OF BROTHERLY LOVE.

Philadelphia, March 25.—It is a little early to say what the condition of the brick trade will be this year, but from present indications it should be very good. The building trade of course has not opened up yet, and considerable work is to go ahead. In about a month there will be more activity, brick of all kinds will be in good demand, and there will be more general buying. At present buying is from hand to mouth, prices are fairly good, but subject to change, and builders and material men will not stock up. Some evidently think brick may go lower, owing to the uncertainty of business lines in general, but there is no excuse or necessity of lower prices. Should business pick up considerably and there be a good strong demand, then the price of brick will go up. Collections are a little slow and everybody is waiting to see how things will be. There are a number of public improvements to go ahead here, and brick will enter into the construction of some of them.

The demand for fire brick, pottery lines, terra cotta, sewer pipe, etc., is fairly good. Inquiries are coming in better for all these lines now, but buyers are taking only what they are obliged to.

The paving contractors are getting ready for an active season and are looking ahead to favorable conditions.

In the suburbs a good many small houses will be built of brick this season.

Thomas H. Gesner, who has run the Gesner brick yards at Darby, a suburb, for fifty years, has retired from business, the buildings removed, and the property will be sold.

The Philadelphia Brick Co., managed by Murrill Dobbins, has sold their product for several months ahead, but the fire they had put the plant back considerably.

The Apollo Silica Brick Co.'s plant at West Apollo, Pa., has been bought by John H. Waters, W. H. Hill, Joseph Waters and Bruce H. Campbell, who will spend some money in improving the plant.

Carroll Bros. have had a good trade in furnishing brick for the erection of dwellings in West Philadelphia and for some large sewer jobs.

There is considerable building to go ahead at Swarthmore and Landsdowne, and the Alden (Pa.) Brick Co. is selling large amounts to be used in that direction.

The Blair Silica Brick Co., of Claysburg, Pa., have put up a new plant with a capacity of 100,000 brick a day. The firm will put up a lot of houses for their own workmen. They have enough orders on hand to keep the plant going for two years.

The Leuten Brick Co. have had several big orders for some large building operations and are doing a fairly good business.

The J. Walter Miller Co., of Trenton, N. J., have bought the plant of the Bordentown (N. J.) Brick Co., and now have three plants, with a capacity of 50,000,000 brick a year. All their brick are sold through the Independent Brick Selling Co. This firm are always busy, are generally sold out pretty well up to the output, and are well satisfied with general conditions.

Not long ago J. B. White, of Cannellton, Pa., made some improvements to the Coleman clay plant and is in better shape than ever to increase the output of the plant.

Charles A. Young had a very good year in 1910 and expects to do better this season. He has furnished a number of big operations in the building line.

S. L. Schall, William E. Watts and Joseph S. Bateman are operating with success the Williamtsown (N. J.) Brick Co.

Webster & Keyser had a busy time last fall serving their customers and are getting in line for an increased business for the year of 1911.

The Clearfield (Pa.) Brick Manufacturing Company have increased their capital stock and made the plant a modern one in every way, and business has been good and the firm are a very successful one. They turn out a fine class of brick.

James Florey, of Downingtown, Pa., has bought the brick plant at Spring City that was owned by Frank Boyer. It is being run by one of his sons and a large business will be done.

Joseph Byrne has been selling for some good building operations in Kensington and West Philadelphia.

Chambers Bros., making brick machinery, have had a fair business and have several orders to fill for shipment to various parts of the country. A fairly good trade is looked for during the present year.

## THE MIDDLE WEST.

The plant of the American Clay Product Co., Roanoke, Ill., has commenced making tile, the first since the strike was declared a year ago. A new boiler has been added.

The Kankakee (Ill.) Tile & Brick Co. has started operations after a shut down since Jan. 28. During the interval a new dryer has been installed and a number of changes and improvements made. The capacity of the plant now is 30,000 four-inch tile each day, and 60 men will be employed.

The Barr Brick Co., of Urbana, Ill., is preparing to increase this year's business over last year's output of 1,000,000 brick.

The Sheldon Brick Co., of Urbana, has secured a new superintendent, Mr. B. A. Harper, of Veedersburg, Ind. The work of installing new machinery, and the general reconstruction of the plant will be carried forward with all possible speed, and the plant will soon be set in operation.

A tile factory is a new industry at Hospers, Ia.

The Davenport (Ia.) Brick & Tile Co. are putting out cards, on which are printed a number of convincing arguments in favor of the use of fireproof construction. All of which is a boost in the right direction.

The Barron (Wis.) Red Pressed Brick Co. elected officers, as follows: G. A. Koerner, president; Frank Hulbert, vice-president; K. E. Thompson, secretary and treasurer; W. J. Gillette, manager. The directors are: G. A. Koerner, J. R. Ferris, N. O. Strand, J. P. Kohl and F. A. Hulbert.

The company did a very successful business last year, turning out about 1,400,000 brick, all sold except about 50,000 now in the yards, and these will soon be gone. Three car loads were shipped out this week.

This year the capacity of the plant will be largely increased and they expect to make 4,000,000 brick. The burning shed will be enlarged and three new dry sheds will be built. Additional acreage has been secured which insures ample raw material for the plant.

Work will be commenced in the spring as early as possible, about the first of May.

Geo. A. Bass, president of the Hydraulic Press Brick Co. of St. Louis, visited the yards at Menomonie, Wis., recently, and was pleased to find the yards in such excellent condition under the management of C. L. Blizzard. The company at Menomonie has received orders to move to Minneapolis, where the various offices of the business are to be consolidated.

The citizens of Fulton, Ill., say an industry needful there is a brick yard and there is a fine opening for one with plenty of good clay and a market for the brick. A chance for some one with a little capital, and a knowledge of the business, to establish a plant.

The brick making plant of the North American Brick, Tile & Pottery Company at Walsh, Minn., will be started in April. The machinery is now on the road, and the work of setting it up will begin soon.

Elaborate tests have been made of the clay of the site, and it has been found suitable for the manufacture of the very highest quality of pressed brick and vitrified brick for paving purposes.

It is the intention of the company to run the plant night and day. The machinery ordered has a capacity of 100,000 brick per day.

There is no better brick made in the northwest than that turned out by Cook, Brown & Co., who have a large plant at Brickport, Wis., three miles north of Stockbridge village. The Neenah Times says:

The Alton (Ill.) Brick Company is placing new machinery in its stiff-mud brick department, and a crew of men will be put to work both night and day so that the new machinery can be placed in by the first of April. There will be a new cutting machine, crusher, presser, etc., in fact a new and complete outfit on the mud brick department will be installed. While the machinery in this department is being installed the dry press department will also run day and night, and the plant will be a very busy place for the next month.

The stockholders of the Alton Co. have increased the capital stock of the company from $200,000 to $250,000 for the purpose of purchasing the Fee-Fee brick plant at St. Louis.

Brick Expert Eaton, of the Murphysboro (Ill.) Paving Brick Co. is returning from a trip to Europe, where he went especially to study the industry of brickmaking as it is pursued there.

## THE WINDY CITY.

Chicago, March 28.—More gratifying reports are being heard now with the indications even better for future clay operations. With only a few exceptions the clay plants in this vicinity are being operated full. Of the prospects it can be said that there will be enough soon to keep everybody humping to fill orders. Outside of the city itself there has been considerable activity, and this seems a trifle strange. However, there is no cause for any undue alarm on the part of the local brick and clay men, as there is a fine prospect ahead for much work.

The reports from the architects are to the effect that the building this year, while seemingly slow, is in reality very promising. The strike and consequent trouble with the steamfitters has caused much work in the downtown district to be delayed, and there has been some trouble otherwise that has made conditions less pleasant than they would otherwise be. This has had the effect of making things less active in that section only, and outside there is a great deal of work being done.

Outlying sections are doing their best this year to make a record in building lines, and it is safe to assert that the results are making such possible. Much of this work is being done with clay products, so that there is at least this much gratification in the work being done. It is firmly believed that the present year will prove one of more than ordinary structural activity.

Conditions in the sewer pipe and kindred clay lines has not changed to any material degree as yet. While the demand is said to be first class, there has been no advance in prices. This is hard to accurately account for, and there is little possibility of the situation becoming more pleasing in this way soon. The prospects are that there will be a more active demand later, and this will keep the plants operating to their capacity, and still the prices continue so low that there is not much more than a living profit in the returns. It would seem that the manufacturers would, in self defense, take some action looking toward an improvement in this way. Cutting prices is and always will be the bane of the manufacturers' existence, and one that will never profit any one in the least.

Building brick demands are increasing, and there is great activity at the several plants here. The reports from the plants are to the effect that there will be a fine year for this line. Face brick is showing more activity, and there is in sight much work to make the face brick men hopeful.

Fire brick and fire clay commodities are among the most called for of any commodity now. There has been no decrease in the activity for this line in the past, and the aspect of the trade is good indeed for the coming months.

The Wm. E. Dee Co. continues to enjoy a very active demand for sewer pipe, flue lining, and other lines, but says that there has been no improvement in the market as regards prices. If the prices were anything near like the demand, there would be a most favorable condition in this line now. The situation with reference to the future seems to offer no particular change as far as they are able to see, and there is not much cause for complaint now. They are operating full at the present time.

The Chicago Fire Brick and Retort Co. has never found the situation better than it has been in the past few months. There has been in that period a continued activity that has been most pleasing to the operations of this plant. If the situation continues as it has in the past there is no reason for viewing the matter in another light, and this will indeed be a year that is full of business and one that has been noted for its pleasing returns.

The Illinois Brick Co. are now operating all their plants and say that the demand for building brick is very great. In fact, the orders are so plentiful that they are keeping things moving along at a lively pace to keep abreast of the demand. This has been the situation for the past few weeks, and there is reason for the belief that there will be a most notable demand for the coming spring and summer. This is the way that the matter is viewed by them, and there must be reason for the demand that bespeaks so much for the future.

The Thomas Moulding Co. find that there has been no material change in the demand for face brick recently. Mr. Combs stated that while the prospects were very pleasing, and that there was much work in the hands of the architects, they were holding off a little. He did not believe that this would continue much longer, as the weather was so favorable for operations, and the situation would soon note a change for the better.

The National Brick Co., finds the demand for building and sewer brick to be good. There has been no great change in the situation of late, but there has been a fine demand and that is all they can hope for or expect. The outlook is such as to give them hope of a big demand for the future, and they are well pleased with the prospects for the year.

The Purington Paving Brick Co. say that there is reason for the belief that there will be a nice demand this season for pavers. While not very much can be expected this early in the season, the indications make the aspect very favorable and they see ahead a year of more than ordinary activity in this respect.

The Wisconsin Lime and Cement Co. find the demand for face brick to be fine. Mr. Cormack said that they are rushed with orders for brick, and that there was a most favorable outlook for a good demand for some time. He was in a most helpful mood, and had reason for this view of the matter, as there had been an increase in orders to make this possible.

The Allis Brick Co., find the call for building brick to be fair with them. They have about completed the work on their new plant and expect to be in full operation within a reasonable time. With the brick situation so pleasing there is ample to hope for and they will be sure to get their portion of the business.

The Bonner & Marshall Co. is doing a very fair business in face brick lines now. While the increase has not been as marked as it might have been, there is in sight a good demand and this will be forthcoming at any time now as the weather has been more auspicious of late. They count on a big increase in the demand soon.

## THE PITTSBURG DISTRICT.

Pittsburg, Pa., March 26.—Apathy is ruling the building brick market in the Greater Pittsburg district. No large contracts have been announced during the last few weeks, although architects declare that inquiries denote a very busy spring and summer business. There is a tendency on the part of builders to hold off, for a while at least, before making final plans for building. True, there are some small jobs to be picked up, but the condition of the local market is not what the brick salesmen and manufacturers would like to see.

Ground has been purchased at 7th and Penn Ave. for a site for a new 12-story, 400-room hotel, and it is remarked in real estate circles that construction is to be started this spring. It is in the heart of the wholesale and theatrical district, and the report is that the building will be built of brick and completed before cold weather commences in the fall.

More or less suburban building is in progress and as a matter of fact more brick is being used this year for the construction of these homes than heretofore.

Local manufacturers who make brick of quality, and a large number of such manufacturers in the Pittsburg district, report a very fair demand for their product from other centers. One firm is doing an excellent business in the eastern market, while still another is selling a lot of brick in the northern and lake towns. Not a small amount of brick is being shipped into Canada.

Railroads announced the building of a number of new stations this season, and the Pennsylvania is taking the lead in this respect. At Steubenville, O., the Pan Handle road is to build a $75,000 station, and the brick for this has been ordered from the Toronto Fire Clay Co., of which Mr. Cuthbert of the Henry W. Oliver building, this city, is agent, and who secured the business.

In the refractory lines, the manufacturers could do more business, so it is reported, without crowding their capacity. The Harbison-Walker Refractories Co. is operating its plant at Templeton, Pa., with a double force.

Improvements have just been completed at the plant of the Auburn Shale Brick Co., Gettysburg, Pa., which will give the firm a capacity of 35,000 brick per diem. Elevators have been re-arranged, new bins installed, new crushers placed and new stacks and water towers built. A concrete floor has been laid in this plant.

B. Dawson Coleman, owner of the shale brick plant at Royalton, near Harrisburg, Pa., has authorized extensive improvements at that plant. Operations will be started as soon as these are finished. The Royalton plant has been idle for about two years. Over 100 workmen will be given employment.

An unusual story comes from Indiana, Pa., where an order for a large number of paving brick and blocks has been awarded the Clymer, Pa., plant by the Indiana council. The distance from the plant to Indiana across country is about 10 miles, but by rail, a trip of about 100 miles has to be made. Construction upon the new brick plant at Snow Shoe, near Bellefonte, Pa., has been started. This was held up on account of the weather. Some work was started last fall, but was given up when severe weather started.

The James M. Porter Brick Co., which has maintained offices in the Bessemer building for many years, will remove within a few weeks, and will then be located on the sixth floor of the new Jenkins Arcade building.

The new Canadian plant of the National Fireproofing Co., work upon which was started many months ago, will be completed, so it is expected, not later than June 1. This improvement is costing over $200,000 and the equipment will be the most modern that can be procured. The same company is ready to begin construction on its new plant at Elkton, Md. The Elkton plant will supply a vast amount of eastern trade, which is advancing at a remarkable rate. Between 300 and 400 men will be employed at the plant when it is placed in operation.

The Pennsylvania Railroad Co. has just announced its intention to build a 30-mile extension to the Conemaugh Division, north of Pittsburg and east from Butler, Pa., which will tap a virgin deposit of fire clay. The extent of the deposit is said to be sufficient to last for ages.

The Blair Silica Brick Co., at Blair, Pa., has awarded the contract for all steel fabric work in its new plant to the McClintic-Marshall Co., of Pittsburg. This plant is expected to be completed and placed in operation early this summer.

The intent of the Chestnut Ridge White Brick Co., at Kunkletown, Pa., is to resume operations April 1. The property is near Allentown, Pa.

New school buildings are to be built at Titusville, Pa., this summer, and the board of education there demanded a general exhibit of building brick. As a result, several panels of tapestry brick were laid, and from these panels the board was to make the selection of stock. In other words, the board wanted to see how the brick would look when in the wall. An actual demonstration was demanded.

The Keystone Brick Co., at Philadelphia, has built a new machine shop and drier shed at a cost of over $3,000.

Macklin, Stevenson & Co. have started operations in their new plant at Newton Hamilton, Pa., which is a small town near Altoona. Building and paving brick will be made. The most modern machinery possible to procure was installed. Shipping facilities are said to be ideal for both eastern and western business. Capacity is about 30,000 per diem.

Fire destroyed the plant of the Fallston Fire Clay Co., at Bridgewater, Beaver county, Pa., recently. The concern manufactured face brick in fancy colors and shapes and other clay products. J. W. Stewart is the superintendent of the property.

The Independent Development Co., which is composed of Pittsburg, Duquesne and Glassport business men, contemplates the erection of a large brick plant at Dravosburg, Pa., this summer. The town is 14 miles south on the Monongahela river from Pittsburg.

Capacity of the Reynoldsville (Pa.) Brick & Tile Co's. plant is to be increased this spring. An appropriation of about $5,000 has been made for this purpose.

Five workmen were injured when the arch over a 21-foot kiln collapsed at the plant of the Mifflinville Brick Co., in Columbia county, Pa., a few days ago.

Since the death of Mr. Scott Dibert his son-in-law, Mr. Geo. Suppes, of Jamestown, Pa., has succeeded him as president of the Mt. Union (Pa.) Silica Brick Co.

### THE BUCKEYE STATE.

Columbus, O., March 28.—By far the most important piece of news of interest to brick manufacturers from the Ohio territory comes this week from the Columbian county district, where the county commissioners of that country, with offices at Lisbon, O., have come out strong for the construction of 50 miles or more of paved roads this summer. Whether paving blocks or the vitrified paving fire brick will be used has not been determined.

Over 400 men met with the county commissioners at Lisbon to express their views upon this mammoth improvement, the cost of which has been placed at over $10,000 per mile. It is also planned by the commissioners to make Columbiana the banner county for country roads in the United States.

One road is to be built from East Palestine on the east side of the county to Minerva on the west. Another is to be built from Salem on the north to East Liverpool and Wellsville on the south. Near West Point, which is seven miles south of Lisbon, there is a division in the "main" road, the left "wing" extending to East Liverpool and the right "wing" to Wellsville. Both of these wings are to be paved and connected with the "main" highway south from Lisbon.

Columbiana county at present owes only $21,000. Within two years this obligation will be wiped out. Road improvement bonds are to be sold. Property owners, township trustees and the county will pay for the improvement, the cost being split three ways. Property owners are more than willing for the improvement to be started, and the Board of County Commissioners, of which Ira Cammel is president, want early action

This mammoth contract will result in a lot of business for the paving brick and block manufacturers in the Upper Ohio valley. Plans for grading are being prepared, and within a few months, the actual construction will be commenced. Contracts for pavers have not been awarded.

It is the general opinion of a number of financial men in Columbus that many of the brick plants in the Hocking valley will be under the management of one concern ere long. Not long ago a number of capitalists inspected plants at Logan, Nelsonville and Athens, and it is reported the trip through these properties was preliminary to consolidation. Common report has it that the "combine," if there is to be one, will be financed by local and New York men. No inside details are obtainable at this writing.

Fire caused a loss estimated at about $30,000 at the plant of the Claycraft Brick Co., located at Groveport, near Columbus, a few days ago. No cause has been assigned. The plant was so badly damaged that it will have to undergo complete re-construction.

With a capital stock of $10,000 the Whitacre Fireproofing Co. has been formed at Canton, O., plants of which are scattered through Stark and Carroll counties. John J. Whitacre, the head of the company, was elected to congress from the Eighteenth Ohio Congressional district last fall—the old William McKinley district—and on the Democratic ticket.

Idle since January, the plant of the Canton Pressed Brick Co., has resumed operations under the management of John B. Zettler. Two additional kilns have been built, and orders are good for early shipments.

H. Walker, of Dillonvale, has formed the Walker Brick & Tile Co., with a capital stock of $50,000.

Many improvements have been made to the property of the Wadsworth Brick & Tile Co., at Wadsworth, near Akron. Officials of the company say the outlook for big business this spring and summer is very bright.

It is possible that operations at the plant of the Heinisch-King Brick Co., at Portsmouth, O., will be placed in operation between April 15 and May 1. An additional downdraft kiln is being built Because of the demand for the building block made by this firm, it is not likely that any change in the production will be made.

Fred Owesney, of Steubenville, general manager and in charge of the sales department of the East Ohio Sewer Pipe Co., at Irondale, O., has been confined to his home with a severe attack of "mumps." This is the first time Fred has been "down" for years.

C. H. Carpenter, general manager of the Suburban Brick Co., at Bellaire, O., who has been spending a season in Florida, has returned to his office.

### WEST VIRGINIA.

New Cumberland, W. Va., March 26.—At a cost of $125,000, Moundsville city, 10 miles south of Wheeling, will construct the most extensive sewer system in the Pan Handle state this spring and summer. Contracts for this work have been awarded B. F. Sweeten & Son, Camden, N. J. In connection with this municipal contract, the state will spend $45,000 in building a sewer from the penitentiary at Moundsville to connect with the municipal improvement.

This improvement means the awarding of some nice business to the sewer pipe manufacturers. Sales managers of sewer pipe firms have been on the ground, and ere another fortnight passes, the awarding of contracts will be announced.

Additional machinery will be installed in the plant of the Uniontown Brick & Tile Co., at Uniontown, Ky., according to information received here.

Dr. George Sloan of North Yakima, Wash., will build a mammoth fire brick plant at Lonaconing, near Frostburg, Md., this summer, it is said. A company with $200,000 capital is being formed with this end in view.

All the plants of the Mack Manufacturing Co., in this district are enjoying a prosperous business, and the demand for the product is increasing. It is the general opinion that all Mack plants will be operated to capacity throughout the balance of the year.

Roofing tile and face brick will be the product of the Dixey Clay Products Co., which is to be formed at Graysville, Tenn. It is said that the initial equipment will cost $45,000.

At the main offices of the Suburban Brick Co., in Wheeling, it is said their plant in Belmont County, O., will resume operations at once, after a four months' idleness. Additional machinery has been installed, and the plant improved in other directions.

The Interstate Commerce Commission has directed the Baltimore & Ohio Railroad Co. to refund $99.25 overcharge to the Thornton Brick Co., at Thornton, W. Va., on 10 carloads of paving brick, shipped from the plant in December, 1909, to Chevy Chase, Md.

The West Virginia Clay Mfg. Co., of New Cumberland, W. Va., has purchased two 9-foot dry pans from the Stevenson Co., of Wellsville, O., and are reconstructing their plant with a view of doubling its capacity.

### HOOSIER NOTES.

The wheels of industry are whirring, the whistles are calling the workers and the smoke from the many tall chimneys indicate the resumption of business at practically every plant in the state, and a generally cheerful spirit is "abroad in the land."

The Acme Brick Co.'s plant has resumed operations, having been closed down for repairs. A new shale pit has been opened. The plan of doing a large part of the work by piece work will be tried out. We are informed that the plant will start up in the best of shape with fine prospects, and a steady run for the year, or longer, assured.

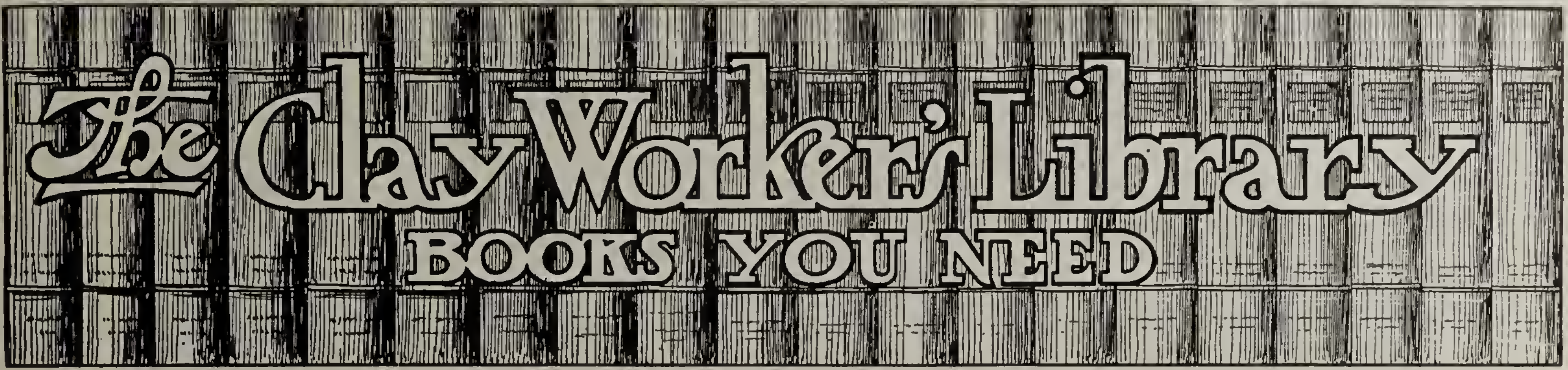
The American Sewer Pipe Co. at Brazil, Ind., are going ahead rapidly with the construction of its new plant there, which it hopes to have completed by April 1. It means an outlay of $100,000 and the employment of 100 men. Engineers from Akron, O., will superintend the construction.

We are told that a new motor truck has been purchased by Mr. David Durbin, of Anderson, Ind., for hauling brick. It is said that this is the first motor truck purchased in America for hauling brick.

The Clinton (Ind.) Paving Brick Co. has resumed operations and is now running full time.

WHEN you see an Atlas Engine and then find the owner, you are pretty sure to find a successful business man.

ATLAS ENGINE WORKS
INDIANAPOLIS



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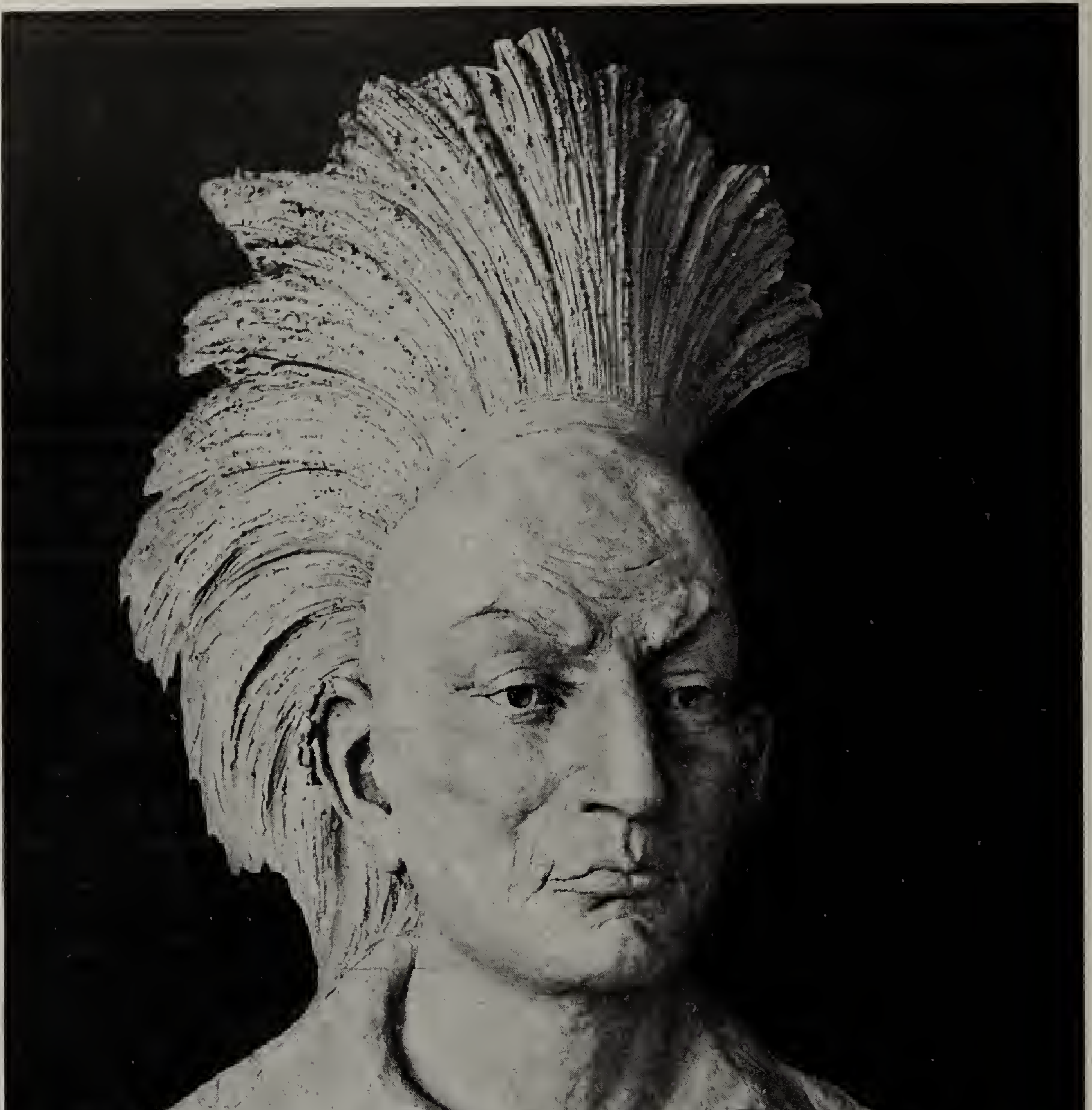


BURNED CLAY SCULPTURE

Keystone Over Main Entrance to the Putnam Building at Davenport, Ia., Made by the Northwestern Terra Cotta Co., Chicago, Showing Possibilities in the Use of Terra Cotta at the Clay Show

VOL. XXXVIII—NO. 8
BRICK
AND CLAY RECORD
APRIL 15, 1911

# PREPARING FOR THE BIG SHOW

## International Brick and Clay Products Exposition Company, Organized in Chicago, and Plans Perfected for the Holding of a Monster Display of all Varieties of Clay Products at the Coliseum in March, 1912

The Chicago "I Will" spirit has been injected into the plans for the coming brick and clay products exposition to be held at the Coliseum in Chicago, March 5-13, 1912, and active preparations are well under way to provide for an exhibit of all varieties of clay wares, in a manner that will reflect the greatest possible credit upon our industry.

To make an exposition of this kind a real success, something more is necessary than merely ideas and talk. Sufficient working capital and an immense amount of hard work and energy are required, both in the planning of the exhibits and displays, and in the preliminary work and the arousing of interest necessary to secure the largest possible attendance. The International Brick and Clay Products Exposition is far from being a local proposition. It will be so representative of all the branches of the industry as to arouse and enlist the support of the manufacturers of all kinds of clay products throughout this country and Canada, and it will be of such extent and importance as will arouse national interest and bring about the attendance of clay products manufacturers, municipal authorities, architects and builders from Maine to California.

A House of Clay—Beautiful Example of Brick and Terra Cotta Architecture Forming an Exhibit at the Berlin Exposition of 1910.

**Financing the Show.**

To make an enterprise of this kind successful, it is necessary that it be in charge of some responsible body, provided with sufficient funds to insure its being launched under the most favorable auspices. Within the past few weeks the International Brick and Clay Products Exposition Co. has been incorporated with a paid in capital of $25,000. Most of the stock of this company has already been subscribed, although there is still stock for sale for those who desire to take financial interest in the enterprise.

This company will conduct the affairs of the coming exposition on a sound and business-like basis and in a manner that will be satisfactory to the manufacturers of clay products throughout the country. The great floor area of the Coliseum building, one of the largest and most beautiful exposition buildings in the country, has been carefully charted and floor space from 50 to 500 sq. ft. in area is now open for reservation by clay products manufacturers. This space will be apportioned on a fair and equitable basis and with a view to making the most attractive display possible of clay wares. The different lines of clay products will occupy separate sections and every manufacturer will be given an equal chance in the securing of proper display space. There will be no favoritism shown in the allotment of space, the one purpose of the management being to make the exposition a success and of real practical value to the clay products manufacturers.

**Value of the Exposition.**

There can be no question as to the great benefits which the clay industry will derive from such an exposition. It is only necessary to point to the great success of the shows and expositions conducted by other industries to see the possibilities which this one offers to the clay industry. Of all the great industries of the country, that of clay products manufacture is about the only one which, up to this time, has failed to take advantage of the advertising value which national or international expositions can produce. The cement interests in particular have been greatly benefited by annual shows which they have held in Chicago and New York for several years past. These shows have had an important effect in the increasing popularity of cement as a building material, not only because of the impressions produced upon the thousands who attended the show in person, but because of the large amount of newspaper and magazine comments given to the exhibits throughout the country. The exhibitors at the cement shows all agree that the direct sales and benefits resulting from their displays and representations at these shows has far more than paid all the expenses and effort involved, to say nothing of the general publicity resulting from a united effort of this kind. No industry offers greater possibilities for a successful exposition than the clay industry. Our variety of products is so great and the materials which we produce so attractive that it is possible for us to present a display of clay wares to the public that will far surpass in beauty and interest those of any exposition ever held by other industries.

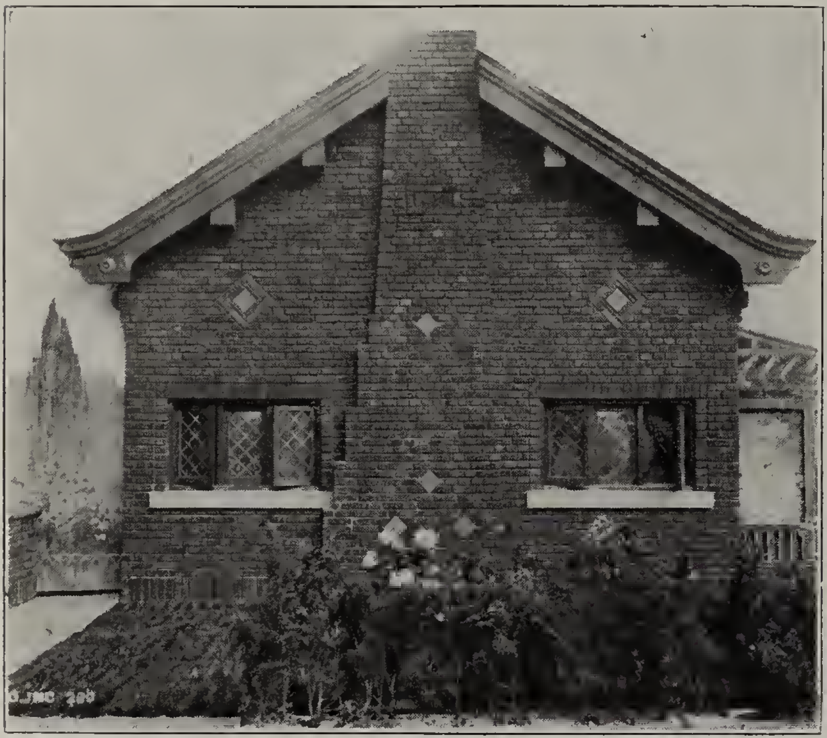


Exhibit of Fiske & Co. at the Real Estate and Ideal Home Show, Madison Square Garden, New York, in 1910—"Tapestry" Brick Laid with One-Half Inch Mortar Joint Raked Out One-Quarter Inch in Dutch Bond

### Shows in Other Countries.

While we Americans pride ourselves on our enterprise and up-to-dateness, we have certainly been behind the times regarding this matter of exploiting our own products. For several years past, the clay products manufacturers of England have held annual expositions at the Olympia, in London, at which displays of various forms of clay products have been shown, of such beauty and interest as to arouse general commendation and which have resulted in promoting to a considerable extent the clay interests of Great Britain. The manufacturers of building brick, refractories, pipe, roofing tile, floor and wall tile, sanitary ware and pottery in that country have made elaborate displays of their wares at these shows, involving considerable expenditure and yet they all agree that such expenditure has been profitable to them in the direct promotion of their sales. The English shows have been of such interest as to result in a large attendance, not only of the general public but of the most prominent citizens and have even been honored by the attendance of members of the royal family.

A few of the exhibits of clay ware shown at the last English show are reproduced in this number and others will be shown in later issues, with more detailed descriptions.

Last year an exposition was held in Berlin, Germany, at which the German manufacturers of clay products displayed their wares in the most attractive and elaborate manner, as illustrated by some of the views accompanying this article. This display was so successful and profitable that it is likely that an exposition of similar character will be held in Germany, annually, for the purpose of promoting the clay products interests.

### Publicity.

No matter how excellent our brick, tile and other clay ware may be and no matter how superior our products are for building construction and other purposes, we cannot expect the public in general to fully recognize the merits of our wares unless we exploit them in the proper manner. We have to an extent been "hiding our light under a bushel" and it is time that we placed before the public in an impressive manner the wonderful variety of our products and their superior merits. This can be accomplished in no better way than through an exposition, such as will be held in Chicago next year.

It must be thoroughly understood that the effect of such an exposition is more far reaching than merely a local advertisement of clay products which would effect those annually attending the show. The exposition company will expend many thousands of dollars in advertising the show throughout the country and its wonders and attractions will be so great that an immense amount of publicity will be given to it through the reading columns of various leading publications. All this publicity is just what the clay industry needs at the present time and such a show will be right in line with the splendid work being accomplished by the Building Brick Association of America and publicity organizations of other branches of the clay industry.

### Some Special Features.

While of course the individual displays made by the various manufacturers and dealers in clay wares will constitute the principal attraction, yet the exposition company is planning for many special features which will add interest to the event.

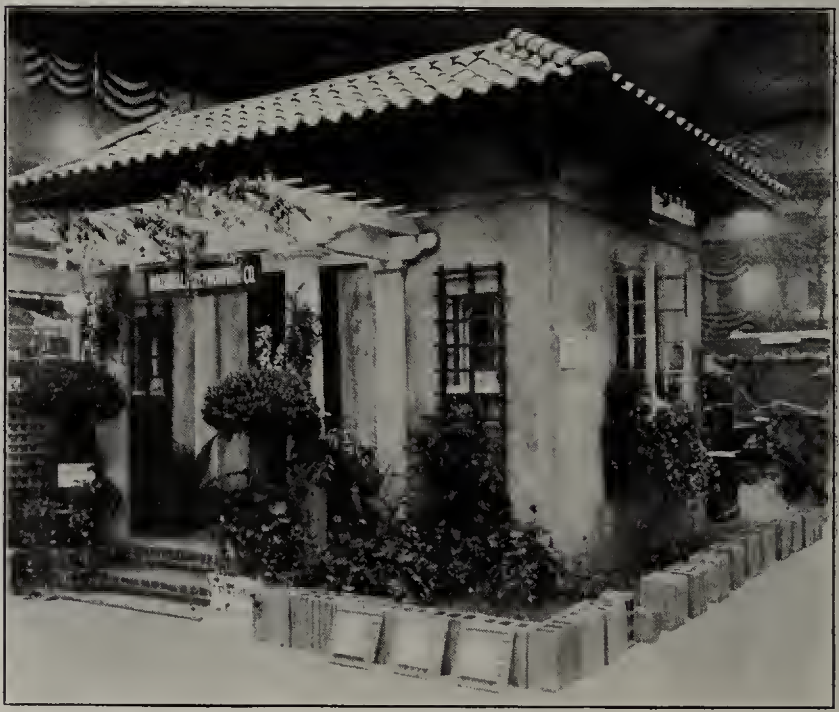
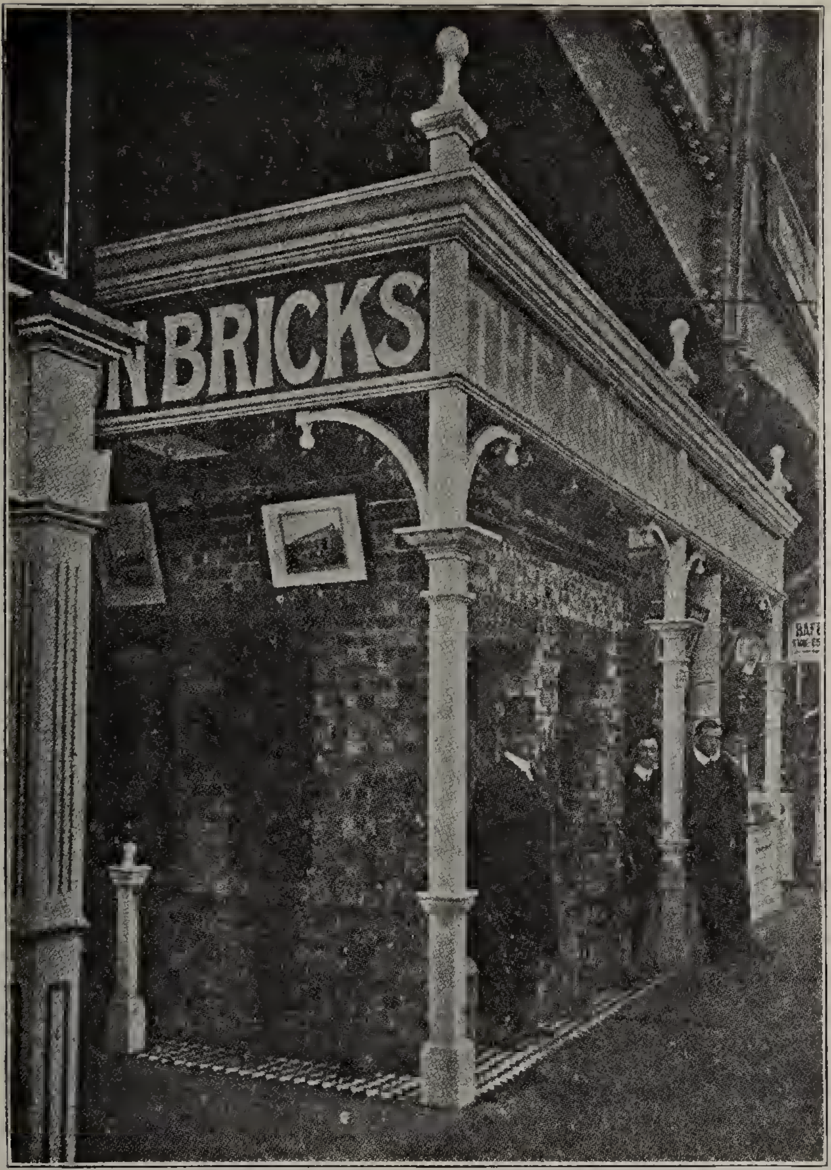
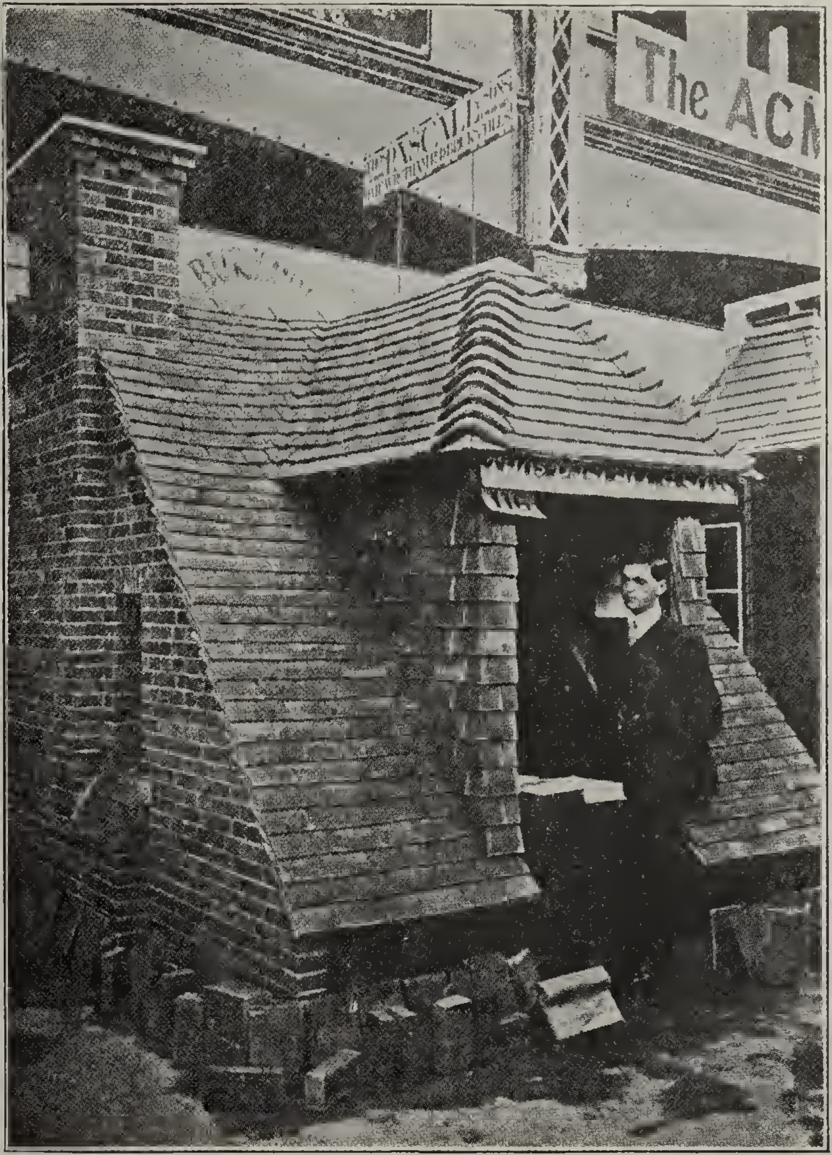


Exhibit of the National Fire Proofing Co. at the Real Estate Show in Madison Square Garden, New York, Last Year

One of the special features contemplated is the erection in the center of the main floor of a model residence constructed entirely of burned clay products. This building will show the use of common building brick, artistic and ornamental face brick, architectural terra cotta, hollow tile, fire proofing, roofing tile, floor and wall tile and hollow block, also the use of sanitary ware and other clay products. It is expected that a prize of a model clay resi-



Pleasing Exhibit of London Brick Co.



Kiosk Covered with Hand-Made Tile, British Show.

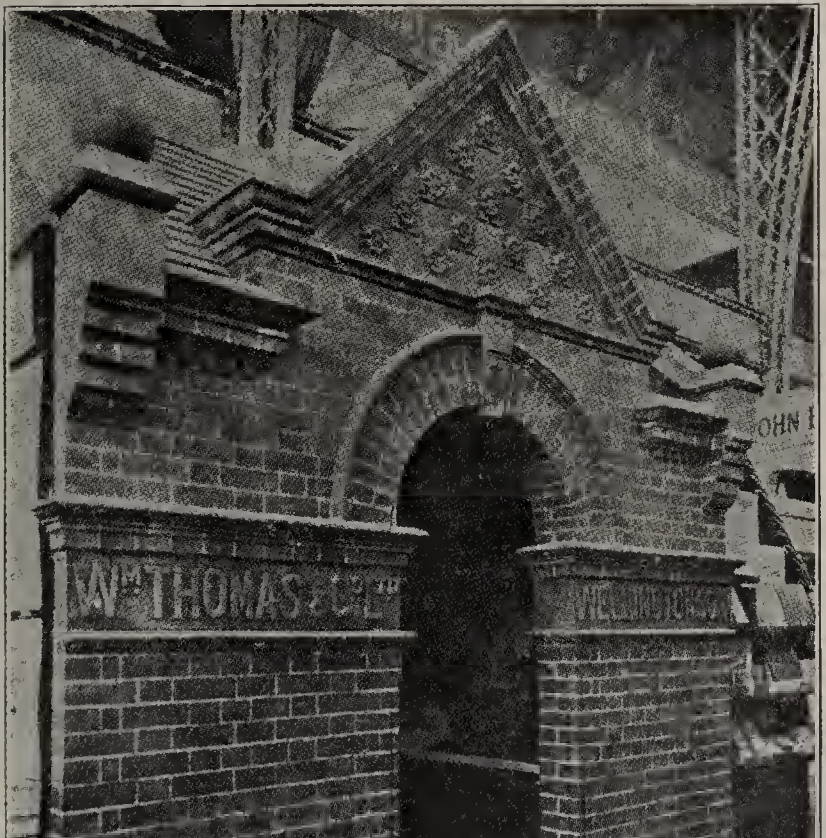


Exhibit of Moulded Brick

Ornamental Ridge Tiles a Feature of Hazelwood Exhibit at British Show.

# English Clay Products Show

## The Above Illustrations Show Some of the Beautiful Exhibits of Brick and Tile at the 1910 Olympia Show in London

dence to cost $10,000 will be given away during the show to the winner of the lucky prize number.

It is also expected that an interesting feature of the show will be a championship brick laying contest, to be participated in by the most expert brick layers in the country.

The possibilities of the displays to be made by different branches of the clay industry are unlimited.

### Building Brick Display.

As will be seen by some of the illustrations showing displays at foreign expositions, the beauty of brick architecture can be exploited very elaboratly through displays at an exposition of this kind. The coming show will give our manufacturers of face brick an opportunity they have never before had to show the public not only the merit of their products but the beautiful wall construction possible through the artistic use of their product. The variety of face brick made in this country is so great that the number of effects that can be produced by the exhibitors is almost unlimited. Many of these displays will doubtless be made so elaborate and beautiful as to merit reproduction in the illustrated publications throughout the country.

Exhibit of W. W. Kellogg at the Builders' Exchange, Seattle, Wash.

The result of an exposition of this kind upon the face brick interests will be to largely increase the popularity of brick as a facing material for buildings.

### American Pottery.

Clay ware classed as pottery in its various forms is manufactured in the U. S. to the extent of $25,000,000 yearly and this is an industry which has developed to its present extent within the last decade. Year by year the importations of foreign potteries have been decreasing and the time is not far distant when the American market will be supplied largely by American-made goods. Our people are, however, comparatively ignorant as to the extent of the pottery industry in this country or as to the variety, beauty and perfection of the American-made ware. They have never been given an opportunity to see displayed at one time a representative exhibit of pottery manufactured in the U. S. The clay products show next year will for the first time in our history give the public a full conception of the magnitude of this industry.

Semi-porcelain and vitreous china table ware are now manufactured in the East Liverpool district and in Trenton, N. J., which are fully equal to the foreign ware of a similar kind, and this table ware will be shown in all its variety of forms and beauty of design, at the coming exposition.

In art ware, we have also made rapid strides and it is expected that the exhibit of high art ceramics at this show will be one of the most striking and beautiful features and one which will arouse general enthusiasm throughout the country.

In the production of sanitary ware, such as bath tubs, laundry tubs, sinks, etc., the U. S. far excels all foreign countries and the exhibits of these specialties at the exposition will be of great interest.

Under the head of pottery can also be classed a considerable variety of other clay products, such as electrical insulators, spark plugs, clay pigeons, and other specialites.

### Architectural Terra Cotta and Faience.

Doubtless the most beautiful and artistic display of clay ware will be made at this exposition by the manufacturers of architectural terra cotta and faience and similar products such as are produced by the Rookwood Pottery Co., the Hartford Faience Co., and other well known firms. These exhibits will include special works of art and terra cotta used for the ornamental and exterior trimmings of buildings and an immense variety of interior decorative tiling, such as is used for mantles and other decorative purposes.

The use of terra cotta and faience for interior decoration has increased rapidly during recent years and this exposition will give the manufacturers of this ware an opportunity which will be of great advantage to them in educating the public to the beauty of their products and in exploiting their interests throughout the country.

### Floor and Wall Tile.

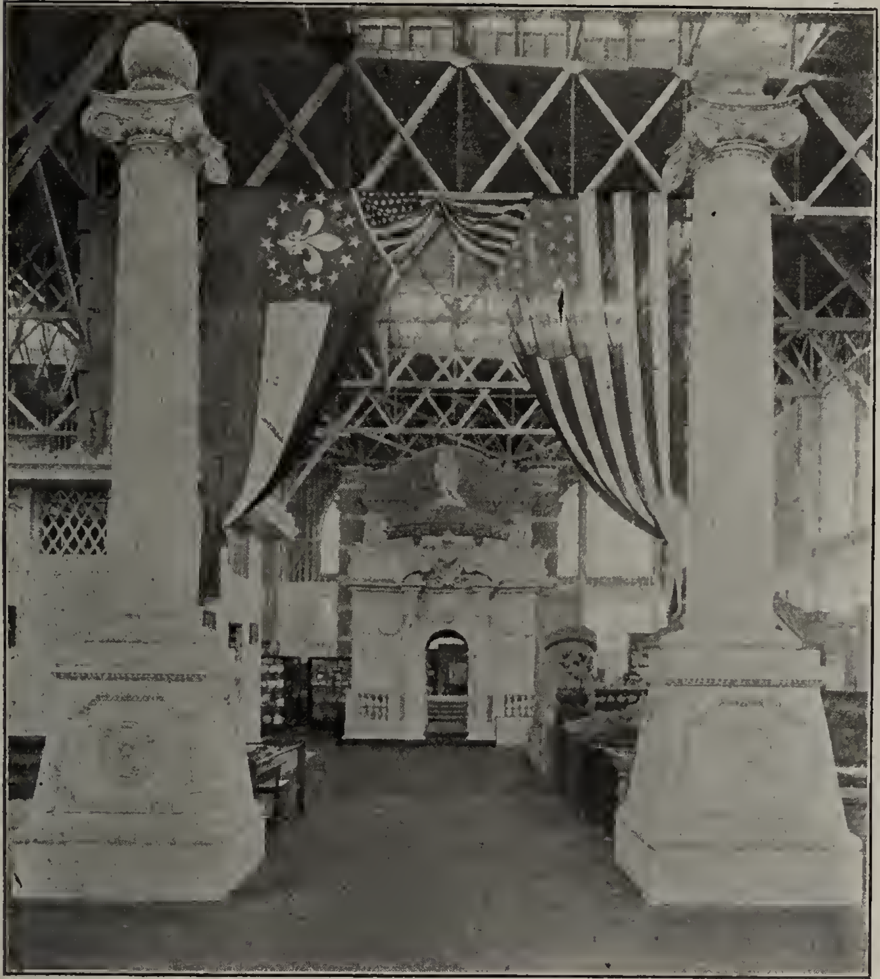
With the advanced methods of building and construction and the endeavor to extend the use of fire proof material, wood for floors, walls and ceilings is being rapidly replaced by the products of our clay working plants and of the materials used, none are more suitable and useful than the floor and wall tiles which are now manufactured in endless variety. They are subject to the most artistic treatment and at the Chicago exposition the beauty of encaustic tiling and mosaic floor and wall surfacing will be shown in the most artistic. manner

With the great advance in sanitary methods of construction, a particularly interesting feature of these exhibits will be the glazed tile bath rooms which will be shown complete, also special hospital fittings. Doubtless the manufacturers of floor and wall tile will make it their business to show the public at this exposition that burned clay is the only suitable material for these purposes.

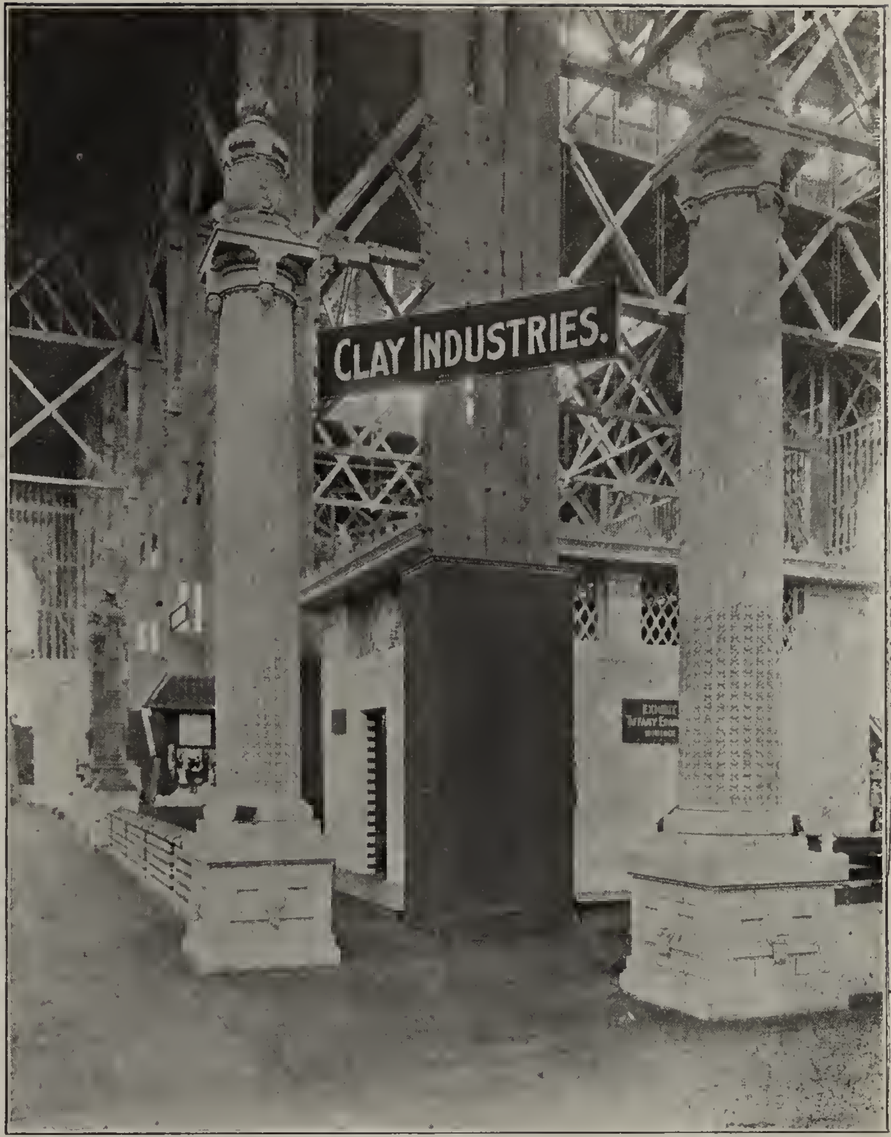
### Fire Proofing.

With the progress in building construction, the public is rapidly learning the extravagance involved in the use of combustible materials and the time is not far distant when all of our new buildings will be constructed absolutely fire proof. In the development of this idea, burned clay products play a most important part and of all forms of clay products, none has lent itself more rapidly to the use of the architects and builders than the so called fire proofing or terra cotta hollow tile. This material is now manufactured in such an endless variety of stock shapes and sizes and its use has been perfected in

# World's Fair Memories



Entrance No. 1 to Clay Industries Exhibit. Columns by the Excelsior Terra Cotta Co., New York



Entrance No. 2 to Clay Industries Exhibit. Columns by the St. Louis Terra Cotta Co.

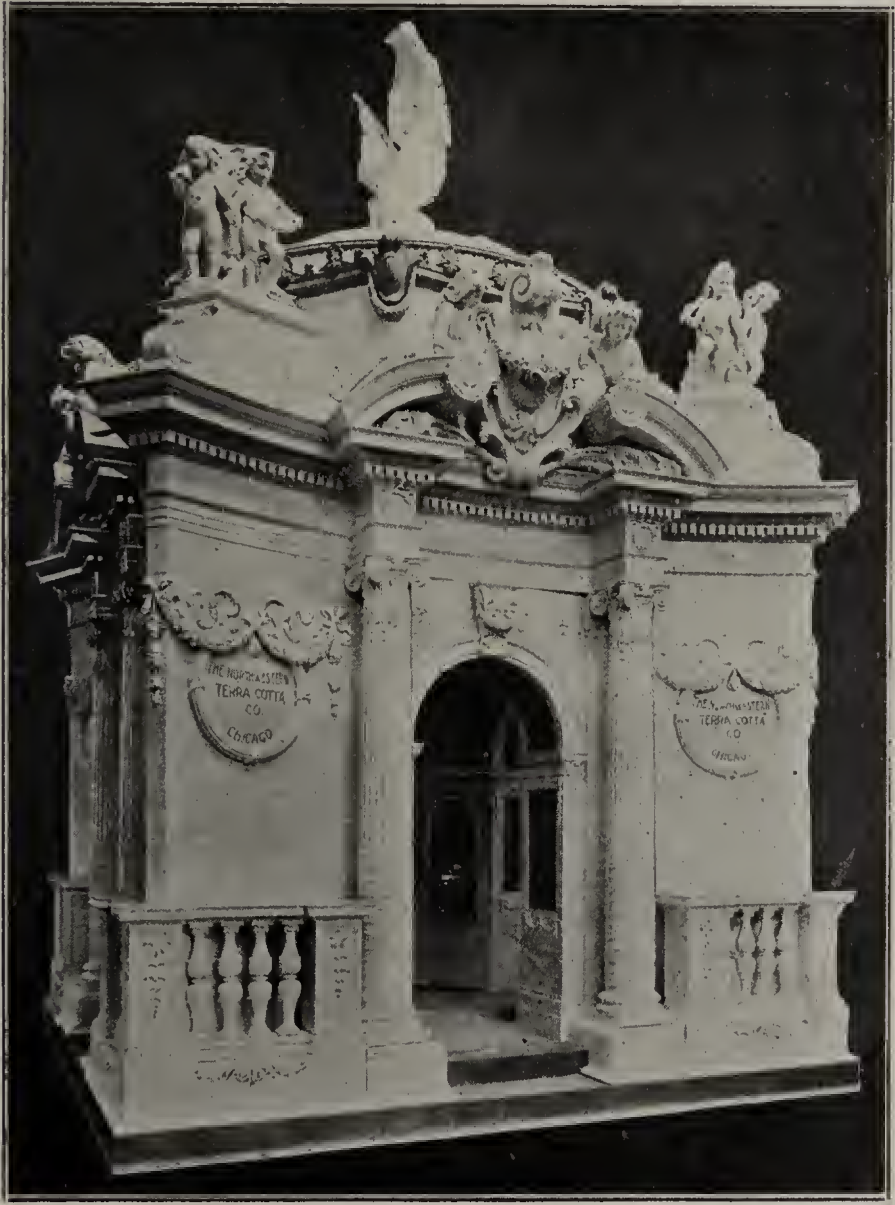


Exhibit of Northwestern Terra Cotta Co., Chicago.

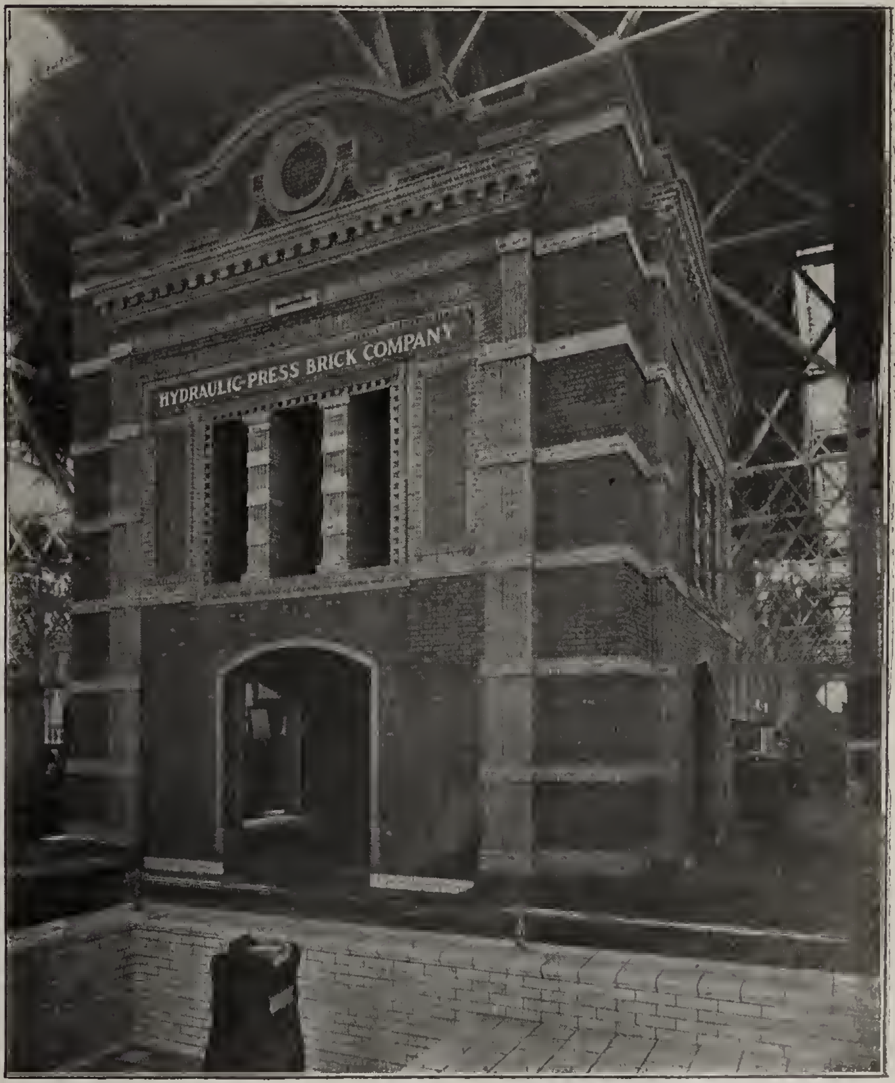


Exhibit Pavilion of Hydraulic Press Brick Co. which Occupied Position of Honor in the Clay Industries Display

**These Illustrations, Loaned by the Clay Worker, Indianapolis, Show What Some American Clay Products Manufacturers Accomplished at Great World's Fair in St. Louis in 1903—What We Have Done We Can Do Again**

(Illustrations loaned by Rock Products.)

Examples of the Enterprise of the Cement People, Showing Some of the Handsome Displays Made at the Recent Cement Show in Chicago

such a manner as to permit its adoption for any form of constructive work. Not only is it available for the construction of walls and partitions but it is now used in preference to all other material for floor and roofing construction.

Of recent years, fire proofing has been adopted exclusively for fire proof residence construction and the manufacturers of fire proof will no doubt avail themselves of the opportunity offered by the coming exposition to show the world in a practical manner the advantages of fire proofing as a building material and its superiority over all other forms of construction. A model house erected of this material will be one of the features of the exposition.

### Farm Underdrainage.

The drain tile branch of the clay industry has been growing rapidly and the prospects are that with the education of farmers to the advantages of tile underdrainage, this will develop into one of the most imporant lines of clay products manufacture. It will be the purpose of the drain tile manufacturers at the coming exposition to show an exhibit that will advance materially the farming interests of the country and for this purpose one of the features of the show will be a model farm drainage system. It is expected that the Agricultural Experimental Station of the U. S. government will assist in preparing this display. In addition to this, the results in increase of farm production through the use of tile under-drainage will be amply illustrated, and the leading drain tile manufacturers will show complete exhibits of the various sizes and varities of tile.

### American Refractories.

It was not so many years ago that most of our fire brick and refractory material came from England. The U. S. manufacturers of clay products are now, however, monopolizing their own market and the fire brick and refractory industry has developed to an enormous extent. The variety of refractory products is so great and their uses so diversified that the displays of these manufacturers at the clay products exhibition will be very extensive. They will include exhibits of the various varieties, and shapes of fire brick, such as are used for the linings of furnaces, kilns, chimneys, etc., and also the various forms of refractories used by the manufacturers of laths, steel products, chemicals, etc. This exhibit will include displays of silica, chrome and magnasite brick used for various purposes.

### Electrical Conduit.

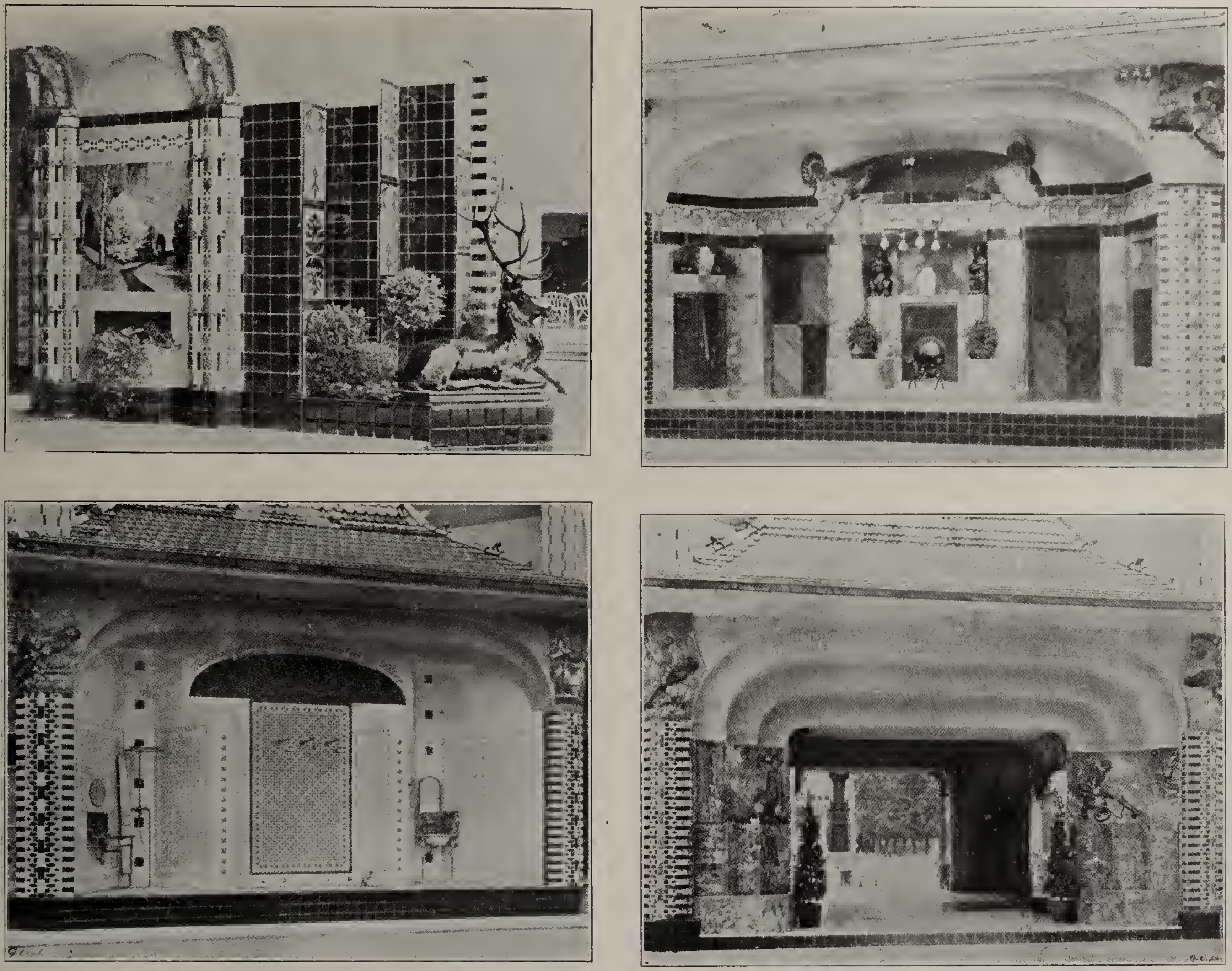
A branch of the industry which has been of recent development is the manufacture of conduits for the laying of electrical wire under ground.

In most cities the local laws now forbid overhead wires, insisting on the use of water proof tubes for holding the electrical wire and for this purpose nothing has been found equal to burned clay. Several concerns make a specialty of the manufacture of conduit and will make a display of their wares at the exposition.

Potted Plants Add to the Attractiveness of the Exhibits. Cement Urns at the Recent Coliseum Cement Show.

### Clay Sewer Pipe.

One of the purposes to be accomplished by the exposition will be the attracting of the attention of municipal authorities to the superiority of clay products In the vast public improvements being undertaken by the various



Art in Clay Products Display as Demonstrated by German Clay Workers at the Berlin Exposition of 1910.

cities throughout the country, sewer pipe plays a most important part and the manufacturers of vitrified clay pipe will at this coming exposition, make a convincing demonstration to the public of the unquestionable superiority of vitrified clay pipe over all other material used for sewer construction. It is expected that many of the sewer pipe manufacturers in the country will take part in this exhibition.

### A Paving Demonstration.

Because of the bringing of so many municipal authorities of Chicago during the expostion next year, the paving block interests will find it of great advantage to demonstrate fully to the public the permanence and perfection of the brick paved street or roadway. This important branch of the clay industry will be fully represented and it is expected that the National Paving Brick Manufacturers Association will take advantage of this opportunity to fully exploit their interests. It is quite possible that the construction of a properly-laid brick-surface street will be one of the most interesting features of the show.

There can no question as to the superiority of brick as a paving material, but a large proportion of the public are not fully educated to its merits and will be interested in such an exhibit. The result of such a demonstration, to the paving brick interests, would be to largely increase the popularity of brick as a paving material and to encourage the further use of brick as a surfacing for city streets as well as for country highways.

### The Arrangement of Exhibits.

While next February seems a long way off, yet the interventing time is none too long for the proper preparation for such an exposition. The designing of an artistic display is no small undertaking and those manufacturers and dealers who wish to secure the greatest advantage from the coming exposition, will do well to begin their plans now and to give the details their most careful attention.

While all exhibitors are on an equal basis and no favoritism will be shown, it can readily be understood that in the allotment of exhibit space it will be a question of "first come, first served" and it will, therefore, be wise for those who intend to make exhibits to make reservation as early as possible of the space that they desire. The extent of the clay industry is so great that it is possible the demand for space may be greater than the capacity of the Coliseum and, therefore, exhibitors should waste no time in having an understanding regarding this matter with the management of the show.

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## THE ROSE BRICK CO.

In a recent special number of the Newburgh (N. Y.) Daily News, a full page was devoted to an illustrated "write-up" of the Rose Brick Co. This company is well known as producing a very fine quality of the Rose brick. Senator Rose is the president of the company and is also the treasurer of the Association of Brick Manufacturers and Agents of the Hudson River Valley.

## SYLVESTER MARSHALL.

In the death of Sylvester Marshall, which occurred on Monday, April 3, at his residence, 4341 Indiana Ave., Chicago, the brick and building trades lost a most devoted adherent. For a number of years Mr. Marshall was identified with the development of the face brick industry, and his efforts were in the interest of raising it to a higher plane.

Sylvester Marshall was born on a farm a few miles from Jamestown, Penn., fifty-nine years ago, where he was educated in the county schools and the Jamestown Seminary. About 1885 he came to Chicago and engaged in the stone industry, being, for a period, president of the National Association of Quarry Owners. He was a man who devoted much of his spare time to social affairs, and was president of the Lakota Club, which is now known as the Colonial Club, one of the most prominent social organizations on the south side of the city.

Sylvester Marshall.

About ten years ago he became identified with the firm of Bonner & More, dealers in face brick. After the death of Mr. More the company was reorganized and incorporated under the name of the Bonner & Marshall Co., Mr. Marshall becoming vice president of the company. It was in 1905 that he accidentally discovered the brick that has since been exploited by this company as the "Oriental" brick, which has become so popular. Being of an artistic temperament, he saw the possibilities of the brick, and through his efforts it has become widely known.

To know Mr. Marshall was to admire him. He was a man who was genial, light hearted and sympathetic and made friends readily, and had that magnetism which drew to him many who loved him for his noble character. He was a man who had principles that proved his faith and his charity toward other men. His widow alone survivies him as there are no children.

## CHANGE OF STREET NUMBER.

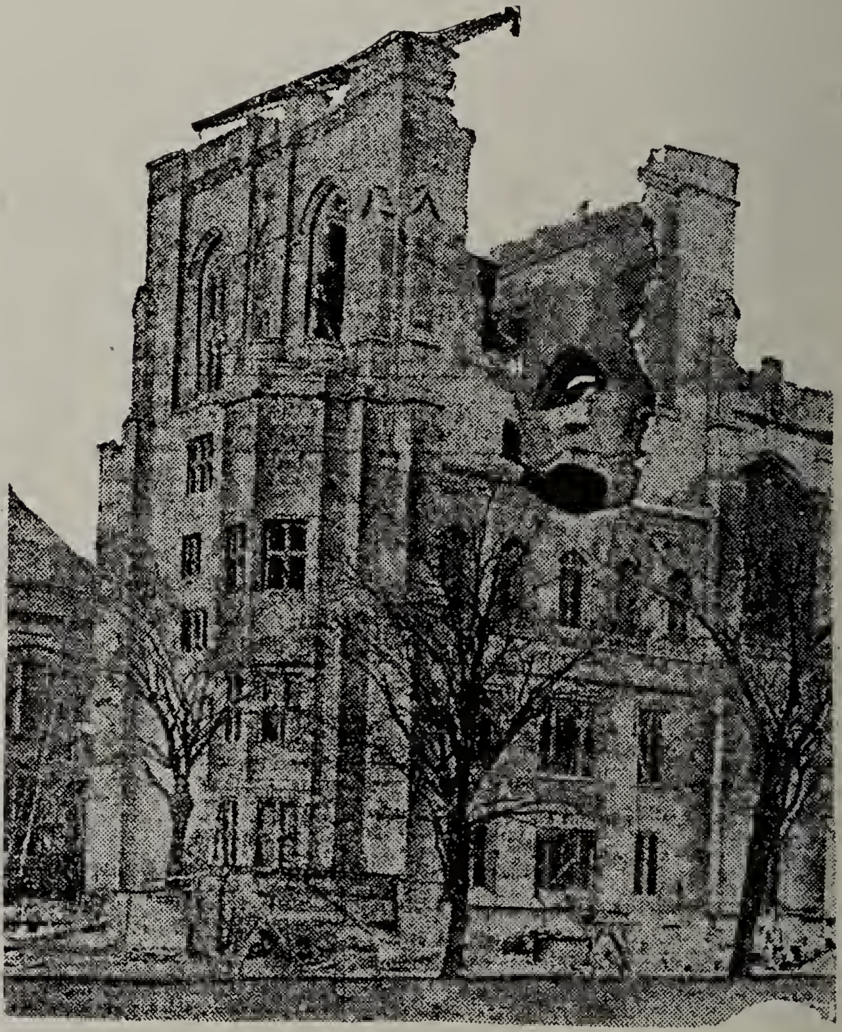
On account of the change of the street numbers in Chicago, Brick and Clay Record's address in the future will be 421-425 Plymouth Court instead of 45-47, as formerly.

## A NOTABLE CONCRETE FAILURE.

Just as the tower of the new Harper Memorial building at the University of Chicago was nearing completion, the building was almost wrecked and workmen had a narrow escape from death, by the giving way of the concrete beams in the tower, causing the seven floors to fall to the basement.

The beams were of concrete several feet thick and weighing several tons and it is thought that some fault in construction or the use of improper materials caused the concrete to crack and fall, carrying the floors in their wake, leaving the inside of the tower a mass of ruins.

The superintendent who was overseeing the construction seemed unable to explain the accident, saying nonchalantly, "There it is. The wind blew it down for all I know."



Harper Memorial Tower Ruined by Concrete Failure.

These failures have become of such frequent occurrences, that one can scarcely pick up a daily paper that does not contain some account of disaster and death, due to the use of this unsafe material.

At Mount Vernon, O., at the new $800,000 tuberculosis sanitarium, which has been completed only a little over a year, investigators found the cement foundation under the barn, not yet ready for use, crumbled and in such bad condition that it will have to be replaced.

Only last week in the city of New York, a girl of fifteen was killed while sitting in her home studying her lessons and seven other persons in the building seriously injured by the collapse of a concrete retaining wall, which came down like an avalanche upon the tenement house crashing through the walls, bearing death and destruction in its path.

It is an opportune time for a campaign by the manufacturers of clay products to demonstrate and show the public, the superiority and reliability of burned clay—the best of all building materials.

# POWER PLANT FOR CLAY WORKING INDUSTRIES

### By Ellis Lovejoy, E. M.

The selection of a power plant for clay working operations includes also the question of drying the ware, and a power plant which would show great economy in one indusrty, will not necessarily be equally economical in a clay industry or any industry in which the waste heat from the power may be used.

Most clay working plants are of small capitalization and the extremely efficient power equipments that are possible in larger plants are beyond the means of the small clay working plants.

On the other hand, we find many factories in which the power equipment was evidently selected without the slightest consideration of the work to be done except the single item of power, and no effort is made toward economical operation.

A bare boiler, uncovered piping, carrying steam long distances, insufficient building protection, slide valve engine, condensation allowed to run to waste, no feed water heater, injector boiler feed, crude furnaces, clogged flues, insufficient draft, heavy boiler scale, are among the items which stand for waste in the development of power, and frequently there is no excuse except neglect.

The return tubular boiler is the favorite steam equipment and it has a number of features in its favor. It is so standard that any discussion of it is unnecessary.

The boiler losses will run as high as 30% of the total fuel, even in fairly well equipped plants, and in badly equipped plants will run much higher.

There is room for considerable saving in the ordinary boiler room practice with small expense for equipment.

The boiler power should be in single large units rather than in several small ones, in order that the radiation and furnace losses may be reduced to a minimum. We think this is beyond controversy.

The boiler should be covered with some non-conducting material and the cost of this is so slight that the only excuse for not using it is gross carelessness. Plastic clay, mixed with some fibre and as much fine white ash as can be worked in, makes an excellent covering. A covering of hollow brick is good, better than solid brick but not as good as the ash mixture.

#### Pipe Covering.

All piping should be covered with some prepared fibrous covering, of which there are a number on the market, and the cost of it will be repaid many times by the saving. It is said that nine square feet of uncovered pipe surface will cause an energy loss per hour equal to that generated by one pound of coal under ordinary firing conditions. A suitable covering will save 80% of this loss.

These coverings are known as, "Hair Felt," "Asbestos," "Magnesia," "Mineral Wool," etc., and tests of them show efficiency as high as 90%.

In the piping we wish to prevent radiation but in the boiler we desire that there shall be as little hindrance as possible to the conduction of the heat from the furnace to the water, and to this end we must keep the boiler free from scale and the flues free from soot. The boiler loss may be increased 10% to 15% by scale and soot.

The blowers on the market for cleaning the boiler tubes will keep the tubes fairly clean of soot, and with an occasional cleaning to remove the hard scale like coating that often forms, we can reduce the loss on account of dirty tubes to a minimum.

Scale in the boiler is preventable, and should not be allowed to accumulate. If simple boiler compounds and frequent blowing off will not accomplish the result, then a water purification plant should be put in. The cost of such a plant is not prohibitive in even a relatively small plant. They not only pay for themselves in fuel but they save the life of the boiler which means 100% profit.

Where the water is bad, every effort should be made to save the water of condensation, and where the exhaust steam either alone or with live steam is being used for drying, the water of condensation should be returned to the boiler. Automatic pumps and receivers, or tilting and other automatic traps, will take the water of condensation from the heating system and put it back into the boiler. The amount of water required to supply the unavoidable losses is small, and we thus reduce the tendency to scaling in a marked degree. Not only this but we are returning to the boiler, water which contains nearly one-fifth of the heat units which would be required to convert cold water into steam.

The cost of pumps and receivers and feed water heaters is merely nominal, compared with the saving which they accomplish.

The feature of greatest economy or loss in the boiler plant is the furnace. Mechanical stokers add much to the efficiency of the boiler plant as well as reducing labor, but where the power plant requires only one man as is often the case in clay working plants, the mechanical feeding is only important in its economy of fuel.

The ordinary bar grate set under the boiler is the worst possible condition, and yet probably ninety percent of our boilers are fired in this way.

Because gases are highly explosive, the impression seems to prevail that they are also highly inflammable which is not true.

Coal, greasy waste and other carbonaceous substances will ignite spontaneously, and wood ignites at a temperature around 400 deg. F., but gases do not ignite until temperatures of 1,000 deg. F. and above are attained. The dangerous hydrocarbon "fire damp" gas,—Methane,—requires a temperature of 1,233 deg. F. before it will explode and it is fortunate for the coal mining industry that it is so. Gases require a dark red to cherry red heat before they will ignite.

The temperature of water in the boiler will vary from 212 deg. F. at atmospheric pressure to 365 deg. at 150 lb. pressure. The outside of the boiler shell will have a slightly higher temperature but far below that required to ignite the gases.

When the furnace is freshly fired a large volume of gas is set free, which strikes the shell of the boiler and is cooled below the ignition point, and passes out of the stack unburned. The loss is partly due to this and partly due to the fact that the air supply is least when the gas volume is greatest.

The solid fuel, becoming converted into carbon oxide in the fuel bed, has a greater tendency to dissociate into carbon (soot) and carbondioxide with lower temperatures, consequently the cooling-off effect of the boiler shell has a tendency to form smoke.

We certainly need enlightenment in the construction and operation of our boiler furnaces in as great degree as in any other department of the industry.

The Dutch oven with coking table is an efficient smoke consumer, and in modified form in the kiln furnaces greatly reduces the smoke nuisance. It can be applied to the boilers with benefit and its cost is within the reach of everyone and it is not patented nor patentable.

The coal is charged on the coking table, while the grates are covered with a bed of incandescent fuel. The gases are driven off and pass over the hot bed of coals where the temperature is amply high to insure combustion, provided there is sufficient air supply. The brick arch over the furnace is also highly heated and aids in completing the combustion.

The gases that pass to the boiler setting are completely burned, or at least more nearly so than would be possible in the furnace under the boiler, and we get the maximum flame temperature applied to the boiler shell with no dissociation.

In connection with the furnace we would use a rocking grate which can be kept clean without introducing such excess volumes of cold air which flow in during hand cleaning. A water tube grate can be used to advantage with a badly clinkering coal.

Rapid strides are being made in engine economy and if it were simply a question of power, the problem of selection of engine equipment would be largely one of cost, both equipment and fuel.

We have the reciprocating engines, plain slide valves, balanced automatics, rotaries, both condensing and non-condensing, simple and compound.

Then in efficiency come the steam turbines; reciprocating and turbines compounded; gas engines; gas engines compounded with turbines.

The clay worker need only consider the reciprocating and gas engines, and since he has need of greater heat for drying than the exhaust will give, he has no use for the compound engine types.

The following heat units are required in the production of steam:—

| | |
|---|---|
| Heat to raise water from 32° to 212°...... | 180 B. T. U. |
| Heat (latent) to convert water into steam.. | 894 B. T. U. |
| Heat (latent) to overcome atmos. pressure. | 71 B. T. U. |
| Total .................................. | 1145 B. T. U. |

The total heat required for 150 pounds gage pressure will be 1194 B. T. U., an increase of 49 B. T. U.

It takes nearly three times as much heat to get the water up to the boiling point than is required to advance the pressure from zero gage to 150 pounds, and nearly twenty times as much to convert the water into steam. This is one of the strong arguments in favor of the high pressure engines.

### Power and Pressure.

Power is synonymous with pressure and we can greatly increase the power at little fuel expense.

A plain slide valve engine using steam at 60 to 80 pounds pressure will require approximately 40 pounds of water evaporation per horse power hour. A corliss type engine will require less than 20 points, as low as 15 perhaps.

On the basis of one pound of coal (good grade bituminous) per eight pounds of water evaporation, a slide valve engine of 100 h. p. will require 5,000 pounds of coal per ten hours, and a corliss engine will require 2,500 pounds.

A gas producer plant will consume 1.5 lb. of coal per h. p. hr., or 1,500 lb. for the above assumed power.

We could quickly decide the power plant if power alone was to be considered, and the more economical equipment becomes of greater importance, the higher the cost of the fuel, but we have need of the exhaust heat for drying, and there is greater value in the exhaust steam in heat than we get out of it in power.

In the slide valve engine we have forty pounds of steam containing 894 x 40 = 35,760 B. T. U. or about the equivalent of three pounds of coal (12,000 B. T. U. value) per h. p. hr., or 3,000 lb. of coal per day in the above power plant.

This leaves 2,000 pounds to charge to power alone.

It may be objected that we cannot recover the full value of the fuel in the exhaust steam, but in reply it may be stated that since we must have a heating plant for drying, the losses will in a large measure balance, whatever the source of the heat, and for the purpose of comparison we need not go into the niceties of the problem.

Figuring in the same way for the corliss engine we have 17,880 B. T. U. in the exhaust, which represents 1,500 pounds of coal, leaving 1,000 pounds chargeable to power. If the corliss engine cost $1,000 more than the slide valve, the interest and depreciation of the former in excess of the latter would be $110 at 6% interest and 5% depreciation.

This leaves $190 in favor of the better type of engine, assuming that coal cost $2.00 per ton, since the net saving in fuel would be 1,000 pounds, or $1.00 per day, or $300 per year. Cheaper fuel will bring the two types nearer together in efficiency, and higher fuel cost will make the corliss showing much better.

There is another factor in favor of the corliss to which we will call attention but will not attempt to discuss.

We get the same power from the corliss engine with twenty pounds of water that we get from forty pounds through the slide valve.

We would not get much more actual heat value from live steam than we get from exhaust steam, since by far the greater recoverable value is in the heat required to convert the water into steam and which is latent until condensation takes place. The live steam however has a temperature of 352° at 125 pounds pressure which enables us to maintain higher temperatures in the heating plant and thus hasten the drying, so that aside from the fact that there would be less loss in using the live steam direct, we will get greater return from 20 pounds of high pressure live steam than from the same weight of exhaust steam which will have a temperature at or below 212°.

A gas engine requires approximately 12,000 B. T. U. per h. p. hr. The number of cu. ft. of gas required will depend upon the heat value of the gas.

For instance, natural gas with a heating value of 1,000 B. T. U. per cu. ft. will give 1 h. p. hr. with a consumption of 12 cu. ft. Producer gas has a heating value of about 150 B. T. U. per cu. ft., and relatively 80 cu. ft. will be required per h. p. hr.

Twelve thousand cu. ft. of natural gas will be required for our assumed power plant, which enables us to compare the cost of power from natural gas and from coal in the engines discussed.

We have assumed that the producer will require 1.5 pounds of coal per h. p. hr., or 1,500 pounds for our above power plant. If there is no recovery from the exhaust, the producer plant will cost more for power than the corliss engine, and when cost and maintenance are considered, it will not make a very good showing, if any, over the slide valve engine.

The heat balance of the gas engine as given by various authorities places the value of the exhaust from 20% to 30% of the total fuel consumption. Since the total consumption is 1,500 pounds we have, in the exhaust, a value of 300 to 450 pounds of coal, which would reduce the power cost to 1,050 or more pounds, which is still greater than the power cost of the corliss engine.

It is a question whether so small a quantity of waste heat as that from the gas engine is worth the cost of the equipment required to save it.

One authority, in comparing types of engines, places the cost of maintaining and operating the reciprocating plant at 100% and that of the gas plant at 50%, while the investment cost of each is given as 100%, but when we consider that 60% of the largest item in the steam plant cost is recoverable in heat, and less than 30% recoverable from the gas plant, there cannot be much if any advantage in the gas plant for clayworkers, except those who have little or no use for heat in drying.

It would appear that for the clayworker there is no excessive loss in the simpler types of engines. We have taken extremes for the purpose of comparison, but there is a large class of engines that, in economy, come in between the corliss and slide valve which will show up very favorably, everything considered.

A plain heavy duty engine that will pull a continuous load without strain is not uneconomical in a clay working plant, although in power alone it does not compare favorably with the higher types of engines.

That too much stress may not be placed upon the value of live steam, it may be noted that the sensible heat in live steam is of small moment compared with the latent heat of vaporization.

A single heat unit will cause a fluctuation of five degrees in the live steam, and its sensible heat is soon exhausted. It should only be made use of after we have brought the drying medium to the highest temperature possible from the heat in condensation.

## FUEL ECONOMY.

We have taken pains on several occasions, in the past, to call the attention of our readers to the very considerable and unnecessary waste of fuel, that occurs in a very large proportion of the clay making plants.

This item of fuel cost is one of the most important entering into the production of the several lines of manufacture and we believe that if the conditions in the power plants were analyzed and given the attention the matter really deserves, that in almost every case a saving could be effected that would not only be surprising but pleasing at the end of the manufacturing year.

It goes without saying that if there are holes in the side walls of the boiler furnace, or in the breeching and stack, that these should receive immediate attention and be covered or filled in, but the greatest and most important loss usually occurs in the furnace.

Even the layman can readily understand that if a reasonably perfect combustion of the fuel burned is not effected, then a considerable portion of the heat units in the coal go through the stack and are wasted, instead of going into the water in the form of heat and so making steam.

The novice can also understand that it is not possible to secure reasonably perfect combustion, unless a sufficient amount of oxygen or air can go through the grates and mingle with the gases given off by the coal, and yet, there are thousands of furnaces still equipped with the old style common grate bars with no provision for keeping the draft spaces through them open, except by the use of the slash bar and main strength.

Every time the fire is slashed with the bar or poker, the doors have to be opened, permitting a rush of cold air into the furnace which immediately results in lowering the steam, and this operation has to be repeated every few minutes throughout the day, because the spaces in the grates fill up at once with ashes and clinkers, and the result of this poking is more clinkers, because it is a well known fact that the bituminous coals should be allowed to rest quietly and not be "stirred up."

In the past few years, a number of clay working plants have installed in their furnaces a form of shaking and rocking grate and this device has resulted in a very considerable saving in coal and an increased boiler efficiency, because the draft spaces in a good shaking grate can be kept open all of the time without opening the front doors, and in almost every case the very cheapest grades of coal, such as slack and screenings, can be used and as much steam secured from these cheaper grades of coal as was formerly made from the higher priced coal on plain grates.

One of the best of these shaking grates, which is in use in quite a large number of clay making plants is known as the Martin anti-friction rocking grate and is illustrated in our advertising pages.

## STEAM DEVELOPMENT.

Mr. R. H. Thurston of Cornell University states in an article written by him for the Encyclopedia Americana that in the year 120 B. C., there was found at Alexandria, a manuscript which proved to be a Hero's "Pneumatica," and although the power of steam in connection with some sort of an engine has undoubtedly been known to mankind since the prehistoric period, this, however, is the first record of the steam engine and describes what is in all probability, the most simple steam turbine possible of construction.

There is, however, very little record of anything like a steam engine of today until 1705, when there was patented by Thomas Newcomen and his partner, John Calley, the first properly so-called steam engine. This consisted of a steam cylinder and piston actuating a beam above, from which was pendant the pump rod operating the pumps in the shaft of a mine; it was always used as a steam pumping engine, but was later improved by the addition of various valuable devices which gave James Watt his fame and fortune. This type engine became known later as the Cornish engine, and after Newcomen's death, was further improved in details by Desaguliers and by Smeaton. In 1718, the first automatic valve-motion was carefully designed by Henry Beighton. This, with Watt's invention of the separate condenser, the steam jacket, double-acting engines, the governor, etc., step by step, produced the engine that is the real basis of those we have in use at the present time.

From the small engines of the early part of the 19th century, to those of the present time, is a change a little hard to appreciate, for it is estimated that the work of the world is performed by steam engines mainly, probably amounting to 150,000,000 h. p. and equivalent to the working power of several times the population of the globe.

Should the growth of steam power increase in the next hundred years as it has in the past, we will have as a result a combined horse-power capable of performing work, the magnitude of which would be so great as to be almost inconceivable to the average person of today. The likelihood of the development in steam power during the next century, however, is not so much in a larger number of engines and boilers, although this is, through the natural growth of the universe, inevitable to a certain extent, but rather in an increased efficiency in those power plants which are to replace those that, because of age and wear, are constantly being discarded.

# A GROUP OF TEXAS PLANTS

Nineteen miles south of Dallas, Tex., almost on the line between Ellis and Dallas counties, is the town of Ferris of less than a thousand people, which can truthfully be said to have made Dallas.

Since 1895, the inexhaustible shale beds around Ferris have been called upon to give up their millions of tons of shale, which has reached Dallas in the form of dry press building brick. Each year has seen the output increase, new plants have started, old plants have been remodeled and increased in size until now the six plants have an output of 100,000,000 brick a year and while a large number are shipped into the flourishing towns to the south, Dallas takes and uses "the lion's share."

The plants extend from north to south about a mile and a half, six of them operating at this time and another company is being organized. The Texas Press Brick Co. is the first with A. Y. Wilcher in charge, The Lone Star Press Brick Co. is just south of this with A. M. Smith doing all of the administrative work and a large part of the selling. Crossing the county line and going still further south one reaches the Globe Press Brick Co., of which T. J. Weatherford is president and manager.

The Globe company was unfortunate in being visited by a fire last June, which entirely destroyed its plant, however in 38 days it was working day and night shifts and making 120,000 brick per day, which was more than any plant in Texas had made, up to that time, in twenty-four hours.

The Atlas Press Brick Co., which is about 1,000 ft. nearer Ferris, was the pioneer plant at Ferris, and is in charge of Mr. Geo. Merzbacher. The Atlas company is the only one that keeps a yard and selling agency in the city of Dallas.

The two remaining plants are owned by local people as are all of the others with the exception of the Ferris and the Diamond Press Brick companies.

Mr. T. G. Cole, who has been identified with brick plants around Ferris for the past ten years, is president of both plants while the management is in the hands of his two sons.

Texas has few brick plants making any but dry press brick, the plant at Ferris and other points in the state being very similar in construction, the shale all being ground in nine-foot dry pans, after which it is screened, then goes to the dry press and is run from the presses to kilns on cars, carrying 56 brick, which the trammer tosses to the setter. The kilns are all open updraft kilns holding about 300,000 brick.

The shale at Ferris is collected from large pits by

Interesting View of the Lone Star Press Brick Co. Showing Track to Clay Pit

Scene at the Globe Press Co's., Ferris, Tex.

Scene at the Globe Press Co.'s Plant, Ferris, Tex.

means of wheel scrapers which dump into two yard cars, these cars are drawn up an incline by means of small hoisting engines, the clay or shale being dumped on to a pile in the curing shed, a team of mules and a boy with a slip scraper continually taking the shale away from the edge of the bottom of the pile to the dry pans, thus mixing the curing shale. Just how long the shale has to be cured is a matter of discussion among the operators, some saying that the curing shed was most valuable in that it gave them a supply when the pit was damp. The plants are divided into units, one dry pan and one press being worked together.

The Ferris (Tex.) Press Brick Co.

The six plants have a total of fourteen four-mold presses, two of them being the Fernholz type, two Berg, the remaining ten being the Boyd four-mold presses, having been installed by the Chisholm, Boyd & White Co. The 9-ft. dry pans were made by the Frost Mfg. Co., of Galesburg, Ill., and the Eagle Iron Works, of Des Moines, Ia.

The burning is done in up-draft kilns having a capacity of 300,000 brick, the operation taking from 15 to 17 days, the first 10 or 12 days the fuel used is wood and the temperature is kept as low as possible to prevent checking; the burning is finished with oil.

The oil burners used are all made by the blacksmith at the plant from a piece of iron pipe and a stop cock. Steam is used for spraying the oil.

The surveyors who located the Houston & Texas Central Railroad at Ferris, for some reason, were most kind to the operators of the brick plants in that they had the road built almost parallel with the outcrop of the shale, this being the case a short spur runs into each of the plants, the shale is dug at the back, elevated to a point from which all of the other work is on a slight down grade, the kilns being built with one end not to exceed 10 ft. from the spur track so that as soon as a kiln is finished, a Mathews gravity carrier takes the finished brick into the car without a turn and the loading in this way is much more economical than is the case at a number of the other clay centers of the country.

Whether the shale at Ferris would make a stiff-mud brick has never been fully determined so far as could be learned. A number of times the brick men there have taken ground shale and made mud brick by hand and tried to dry these, the report on most of these trials is that the mass of clay blistered and checked so badly in air drying that no attempt was made to burn it.

The owners of the Globe Press Brick plant at Ferris, Tex., believed for a number of years that they could increase its efficiency if the machines were run at a slightly higher speed, but they also felt that to get new pulleys would be a large expense. A year ago the plant was destroyed by fire. When new equipment was ordered, the superintendent got pulleys of the size that he had been wanting for several years, he changed the lay-out of his dry pans and their speed and reports that the amount of material being delivered by the same pans is much greater, and, strange as it may seem, the repairs that he has used in the nine months that he has been running under the new speed have been much less than was the case with the slower speed and the smaller output.

A change in speed will not always help, but it is the feeling at the Globe plant that had the trial been made when they first had the idea, it would have made the dividends for three years larger if they had spent the small amount needed for the trial.

## EXTENDING THEIR LINE.

It will be interesting to the trade to know that the firm of Taplin, Rice-Clerkin Co., well known manufacturers of clay machinery at Akron, O., have increased their line of clay working machinery and are now, in addition to their other products, turning out auger mills, disintegrators, pressure tile cutters and other appliances for making small tile. Heretofore, the company has furnished machinery for tile plants, for the manufacture of only the larger sizes of tile, but it is now their purpose to be able to equip any tile plant complete, for the manufacture of all sizes of tile from the smallest to the largest.

The Taplin, Rice-Clerkin Co. have just issued a handsome new catalog No. 29, which embraces a description of all the "Pioneer" clay-working machinery. It is a very handsome booklet and complete in its descriptions, information and illustrations. It includes full details regarding the T. R. C. dry pans, wet pans, grinding and tempering mills, sewer pipe presses for the making of sewer pipe, large size drain tile, bucket elevators, storage feeders, screens, pug mills, disintegrators, potters' machinery, etc., in addition to all the varieties of trucks, barrows and other clay-working equipment. Copies of this handsome catalog will be sent upon request.

## A HANDSOME CATALOG.

One of the most attractive clay machinery catalogs ever issued, is that now being distributed by the Arnold-Creager Co., New London, O. The catalog is a book of considerable size and printed on high grade paper, beautifully illustrated by half-tone engravings of superior merit and excellence. The cover design is of special beauty, "A Vine-Clad Brick Wall" being the subject of the artistic engraving.

The Arnold-Creager Co. have long been prominent in the clay-working field, especially in connection with the soft-mud branch of the industry, and their line of machinery and brick yard equipment is very complete and up-to-date. They do a very satisfactory business and orders this year have far surpassed those of many previous seasons. The Arnold-Creager Co. has been building machinery for the clay industry since 1877.

The new catalog very fully describes the Arnold-Creager line of soft-mud machines, barrows, trucks, molds, pallets, dump cars, dump tables, sanding machines, stiff-mud brick and tile machines, cutters, elevators, pug mills, disintegrators and a large variety of small accessories required in and about brick and tile yards. The Arnold-Creager Co., New London, O., who call special attention to their announcement in this issue, will send copies of the new catalog to anyone on request.

# MODERN CLAYWORKING

Part XXVIII.

By A. B. Searle.

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## BOILERS AND ACCESSORIES

### Some Suggestions Regarding Power Plant Equipment and Steam Making Troubles.

The function of a steam boiler is the generation of heat, apart from the engine in which the heat is to be utilized. It is a far cry from the earlier boilers, which carried steam pressures of only three lb. or four lb. above that of the atmosphere, to those of the present to which pressure of 180 lb. and 200 lb. to the inch are common and sometimes exceeded, and pressures of 60 lb. to 80 lb. are considered very low. There are certain earlier types, often illustrated, which are not made now such as the externally fired egg-ended boiler, the Rastrick, the box-boilers and the old "haystack," although their use lingers in some old firms. Also the use of iron for boilers has been discarded for that of steel, with all the practical advantages which result from the use of the latter.

The types of boilers now used for steam production in clayworks vary greatly according to the purpose for which they are used, from the simple vertical boiler to the most completely fitted water-tube boiler made. An ideal boiler is one which can supply the maximum of steam required at the lowest possible cost, for the longest possible time. In view of possible extensions of the works, however, it is never wise to put in a new boiler without ensuring that it has ample power for producing more steam than is ever likely to be required. Too large a boiler on the other hand, by having unnecessarily large radiating surfaces, will waste heat.

Boilers occupy a unique position in clayworking, as they are used almost as extensively for the production of steam for drying as for engine-driving, and therefore demand a somewhat detailed treatment.

By far the most popular boilers in clayworks are the tubular type, in some of its modifications, though the use of water-tube boilers of the Babcock and Wilcox or of the Yarrow and Stirling types is becoming increasingly common where high pressure engines are employed.

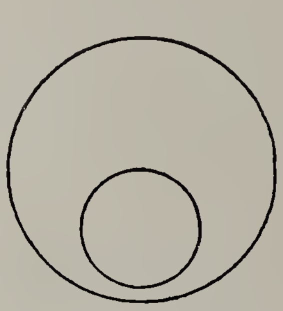
For cranes and other appliances where portability is of value the vertical tube boiler is still much in use.

A Cornish boiler contains one large tube running through the boiler from end to end, carrying the grate at one end and the other end being connected to the chimney. This large tube is frequently crossed by short conical ones, termed Galloway tubes, which increase the heating surface and also help to strengthen the large tube through which they run by acting as stays. The flue lies centrally in the horizontal direction, but below the centre in the perpendicular axis, in order to give ample water space above. In Continental types it is placed to one side. A considerable space is occupied by the flue, thus, in a boiler 5 ft. in diameter, the flue is 2 ft. 7½ in. in diameter. This is a large space to take away from the water and steam space, and leaves little room between the bottom of the furnace-flue and the bottom of the boiler-shell, and renders cleaning difficult.

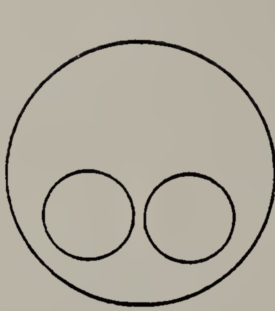
A Lancashire boiler resembles the Cornish in all respects except that it has two furnace flues instead of one, which is preferable for the larger boilers. There should not be less space than 4 or 5 in. between the flues, or between the flues and the sides of the shell.

Roughly, the length of a Cornish or Lancashire boiler is equal to from 3½ to 4 times the diameter.

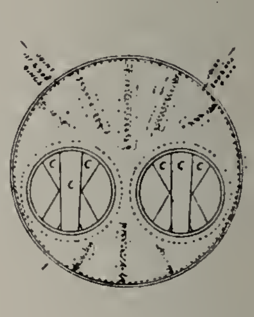
Cornish or single-flued boilers are usually 4 to 6 ft. in diameter, and Lancashire or double-flued boilers from 6 to 8 ft. in diameter and sometimes are as much as 8 ft. 6 in. in diameter.



The Cornish Boiler



Lancashire Boiler



C C C Galloway Tubes

A Galloway boiler is a modification of the Lancashire type, which gives greater efficiency by increasing the number of conical tubes and providing a number of water pockets. The tubes are not placed as in the ordinary boilers, but in a breeches arrangement in which the two furnace tubes unite in a single smoke-flue beyond the bridge, which flue contains the Galloway tubes. A modern full sized boiler will contain 30 of these flues, besides four side pockets, which help to break up the flame and heat the water. These tubes shown in the cut are so termed from their inventor, and are also called conical tubes, from their form. They have added much to the efficiency of both Cornish and Lancashire boilers by improving the circulation between the dead water at the bottom and the hot water at the top. The conical form is imparted simply to permit of the insertion of the smaller end of the tube, through the hole cut for the larger end. The tubes are arranged in different planes, vertically and diagonally, in order to allow the hot gases to strike fairly against each successive tube.

There are considerable numbers of Cornish and Lancashire boilers made of multitubular design. That is, the furnace flue terminates a little way beyond the bridge, and the hot gases pass through a nest of tubes to the back of the boiler. The tubes are from 3 in. to 4 in. in diameter and vary in number from 20 to 90.

In all the foregoing boilers the firegrate is placed at the front of the flue and extends along it to a length of 5 ft. or 7 ft. Thence the products of combustion pass through the furnace flue or flues to the rear, and out at the back of the boiler. They then return through brickwork flues by what is termed a split draught; that is the hot gases pass down the down-take at the rear, and back to the front of the boiler by a central flue of brickwork. Finally they are diverted to the right and left under the action of the chimney draught into side flues, and so out at the chimney.

The gases in their passage through the brickwork flues render up heat to the water in the lower part of the boiler, which is least affected by the heat from the furnace. The brickwork flues are therefore an essential feature of these land boilers, as they were formerly termed.

The boilers are supported on seatings of brickwork which form the walls of the flues. Dampers are provided to regulate the draught. The result is that the boilers are very economical, easy to operate, and have long been deservedly popular among mill and factory proprietors. The fire bridge is a bridge built of brick at the rear end of the firegrate in all boilers of this group. It reaches to within 9 in. or 12 in. of the top of its furnace flue, and its function is to delay the escape of the hot gases into the smoke flue, and so to promote complete combustion.

It is usual for the main flue or flues in the boiler to be truly cylindrical, and of the same diameter throughout, but several boilers have recently been constructed in which the internal flue or flues are of a gradually increasing size or diameter from the furnace end to the opposite end. This device, which is the distinctive feature of the Yorkshire boiler, produces a more uniform transference of the heat to the water over the whole length of the boiler, since the temperature of the products of combustion gradually falls the further they travel away from the furnace, while the expanding or enlarging section presents a larger heating surface to them, and the body of water surrounding them suffers a corresponding diminution of sectional area. A greater proportion of heat of the products of combustion is thus abstracted at a distance from the furnace than where the flues remain of the same diameter throughout. As this heat is absorbed by a smaller quantity of water, a higher temperature is given to the water at this part. Also the slower passage of the gases through a larger section allows the combustion to be more complete. As more heat is abstracted from the products of combustion before they leave the internal flues, owing to the larger heating surface offered by the expanded part of the flues, and where the transference of heat to the water takes place more rapidly than in the side flues, owing to the greater difference in the former case between the temperature of the flue gases and of the water, ebullition takes place more rapidly and the efficiency of the boiler is correspondingly increased. As a consequence a smaller plant will suffice for the same power. By keeping the fronts of the flues as low as they can conveniently be placed without reducing their diameter or the width of the firegrates below what is desirable, and by thus inclining the expanded flues, the head of water immediately over the hottest part of the flues is thus unusually large; this increases the rapidity of the circulation and overcomes the great difficulty of sluggish circulation in the bottom of ordinary Cornish and Lancashire boilers, which is due to the depth of water below the flues.

A vertical boiler is chiefly used where portability is of importance, or where it would be too costly to transport a horizontal one. Vertical boilers are, therefore, chiefly used in pioneering work in the clay trade and for cranes.

A vertical boiler is never made as large as a Lancashire boiler, though the largest verticals are as big as many Cornish boilers. They require no brickwork and no foundation and can therefore be easily transported and set down anywhere but they are not so economical as the Cornish and Lancashire. The steam supply runs down very rapidly under severe service, because the steam and water areas are small, and firing cannot be done so well as in the other boilers named, because the grate is not suitable for preliminary coking of the fuel, being of rather small dimensions, and having no dead plate. Still, for intermittent kinds of service they are useful and popular, and steam can be raised in them in a small fraction of the time required in the boilers laid on brickwork flues.

As will be seen from the illustration a vertical boiler consists of a cylindrical box the upper part of which (in use) is filled with steam and the lower with water. The water surrounds the internal, vertical flue which is cone shaped but ends in a pipe (as shown), the conical portion giving a large heating surface and facilitating the disengagement of the bubbles of steam as they are formed in the narrow annulus between the outer shell and the inner firebox.

All vertical boilers of recent construction, except the smallest are fitted with Galloway tubes (C) or cross tubes and many of them have vertical firetubes as well.

A water-tube boiler has the firebox external to the water holder and is thus the reverse to the ones previously considered. This type of boiler is becoming increasingly popular where very heavy loads are in use or where it is necessary to raise steam very rapidly. Water tube boilers need more skillful handling than others but are far more economical, when properly managed.

The most popular for clay works are those of the Babcock or Wilcox type and the Yarrow, the Stirling boiler combining the advantages of both.

As will be seen from the accompanying illustrations, the tubes containing the water are arranged in a large firebrick chamber, in a sloping or nearly vertical direction, so that the heat from the fuel may play all around them. They are, therefore, rapid steam raisers as well as being very economical in fuel. Owing to the small diameter of the tubes through which the water circulates, care must be taken to use a water free from much tendency to scale, though in the Stirling boiler this is of less importance as the lowest drum is specially arranged as a mud collector and the arrangement of the flues is such as to reduce the chances of the blocking of the tubes by scale to a minimum.

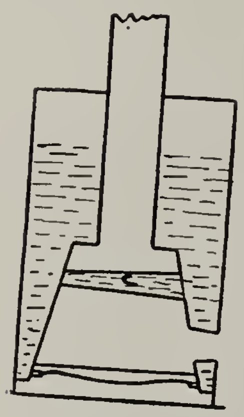
With all water tube boilers only soft water should be used, as otherwise scale is frequently deposited over what should be the most effective heating surface, with the result that the economy of the boiler falls off, with the added danger of the tubes burning out.

Comparing one type of water-tube boiler with another, it is generally found that the more vertical the tubes, the cleaner do they keep and the less danger is there of the pipes becoming full of steam instead of containing water, thereby causing overheating. The outsides of the tubes are also less thickly coated with soot and can be arranged for easier cleaning.

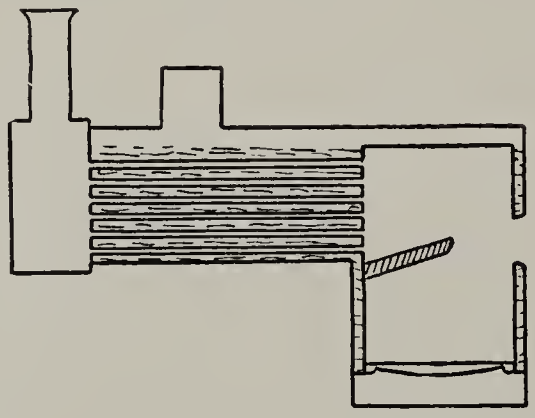
It is also important that the tubes should be so arranged that in the event of one being damaged or requiring renewal it is not necessary to take out any good tubes in order to withdraw the defective one.

### Forced Draft.

Any means which can be used to increase the amount of fuel burned per hour by a boiler will, other things being equal, give a larger evaporative power and therefore an increased horsepower to the boiler. These means are in general known as forced draught, as they usually consist in the supply of a larger quantity of air to the fuel, either by blowing air into the fire with a fan or blower or by drawing it through the fuel on the grate, by means of induced draught fans placed on the uptake or at the base of the chimney. Where fans are used the induced draught is more popular.



Vertical Boiler.



Locomotive Boiler

In clayworks the steam-jet has come largely into favor for increasing the draught, and very good results have been obtained from the Meldrum system, in which the air is drawn into closed ash pits by a steam-jet blower of special construction which forces it through the fire on the grate. With specially designed wrought iron bars spaced one-sixteenth inch apart, coke, breeze, coal dust, and combustible refuse such as could not be burned on an ordinary grate with natural draught, are utilized to advantage. In this connection, however, it is necessary to calculate the relative costs of carriage of the different fuels, for the cost of transport of ashes and useless matter is the same as that of the coal containing them, and it is often cheaper to buy a better grade of fuel when the distance from which it must be brought is great.

With ordinarily good fuel and natural draught, it may generally be assumed that if a forced draught is substituted the rate of evaporation may easily be increased 30 to 50% and the working of the boiler will be much steadier than when natural (chimney) draught is used.

The efficiency of a boiler is dependent on the ratio of water evaporated to fuel consumed, the number of heat units produced by the fuel being compared with the number of heat units required to evaporate the water.

Where high efficiency is required the water tube boiler undoubtedly takes the lead, though the difference is not so marked as is often supposed, the ordinary boiler being far from wasteful when an "economizer" is inserted between the boiler flues and the chimney stack.

### Grate Area.

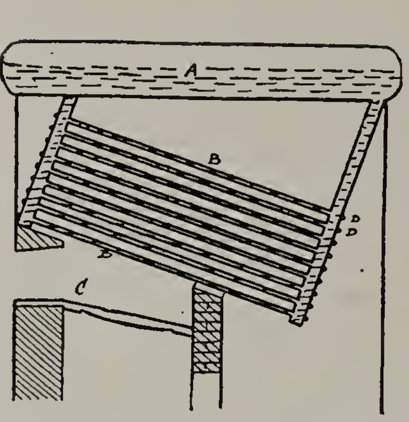
In choosing a boiler, some attention must be paid to the fuel it is intended to burn, so that the grate area and the distance of the bars from each other may be arranged accordingly. Many engineers fail to realize that the spacing of the bars for a caking, clinkering coal, should be quite different from those used in the burning of a fine coke or dust, and by erroneous specifications cause a perpetual waste of fuel.

It will be found advisable not to change the quality of the coal at all frequently, for firemen find the best way of using any particular kind with which they are familiar, and if another is substituted for this they cannot obtain such good results.

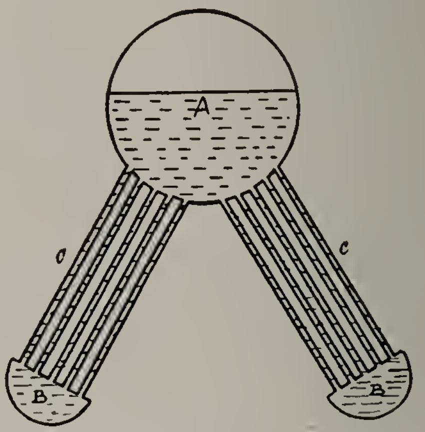
The water supply of a boiler is a matter of great importance, as unsuitable water causes endless trouble and loss. Indeed, the water intended for use in boilers for steam-raising purposes cannot be too pure. The popular idea that rainwater or condenser water is too pure for use in boilers is fallacious, for their corrosive action is due, not to their purity, but to the dissolved gases present in these waters. These gases escape on heating, and pitting or corrision is often found around the feed-pipe of boilers fed with such "pure" waters. The oxygen, carbonic acid, and other dissolved gases, which cause the pittings and corrosion, are in reality impurities of the water. In most cases, heating the feed-water to 212 deg. F. before it enters the boiler is sufficient to remove them. In cases where pre-heating is impossible, the addition of a little caustic lime or baryta is often sufficient to minimize the evil.

But water containing only gaseous impurities is not often available for steam raising purposes; and the waters used for feeding boilers must usually contain calcium carbonate and sulphate, and the corresponding magnesium salts in solution as impurities. Sometimes oil and grease are also present, and on decomposing cause pitting and corrosion. Great care and attention should be given to their removal, for a large number of boiler explosions have been traced to greasy deposits within the boilers. When water from surface and jet-condensers is employed as make up for the boiler feed-water, this danger is, of course, greatly increased.

Sand-filters and grease-separaters are employed in many works to remove oil and grease from the condenser water; they are not absolutely effective, and chemical treatment is necessary to remove the last traces of oil and grease from the water. This can be most cheaply effected by first passing the condenser water through a sand-filter or filters, adding it to the ordinary boiler feed supply and passing it through the softening plant. The calcium carbonate precipitated during the softening will then carry down all the remaining oily and greasy particles.



Wilcox Water Tube Boiler



Yarrow Water Tube Boiler

The clearness of a natural water is no guide to its suitability as a boiler feed-water, and only chemical tests can be relied on to decide this point. All waters, containing over 14 grains of solid matter per gallon, should receive chemical treatment before use for steam-raising purposes. On boiling, these waters deposit their lime salts as an incrustation on the boiler plates.

In fact, one of the most important reasons why unsoftened water should not be used for feeding a boiler is, that the scale which collects on the plates is an extremely bad conductor of heat, and the loss in rapidity of transmission of the heat of the furnace to the water is very considerable. Consequently, a boiler, in which the plates are covered with scale, requires much more coal to evaporate the same quantity of steam than a clean boiler, and what is perhaps even more important, the boiler plates, not being in direct contact with the water, owing to the intervening layer of scale, become overheated. Where the scale is at all thick, this is a serious matter, as such incrustations are always the thickest and hardest, and therefore the most dangerous, at those points in the boiler where the heat transmission is the highest, and risk from overheating of the plates the greatest. In Lancashire boilers, this point is the crown of the arch of the firebox; and when collapse of such a boiler occurs, it is usually at this point.

When it is considered that a 100 h. p. boiler will evaporate 30,000 lb. of water in ten hours, or 390 tons per month, it is not surprising that, with unsoftened feed-water, the scale should accumulate rapidly. Scale 1-16 in. thick causes a loss of 13 per cent. of the heating power of the fuel; scale ¼-in. thick a loss of 38 per cent.; and scale ½-in. thick, a loss of 60 per cent. of the heat given out by the fire.

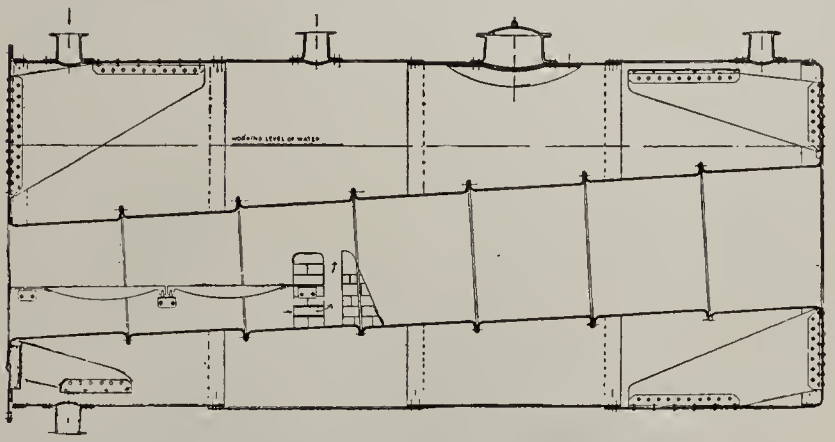
The feed water should be allowed to enter the boiler near the coolest portion of the water space, so as not to impinge on hot plates; it should also be diffused through a perforated pipe and not be forced in a direct stream.

The importance of ensuring that the feed-water has a high temperature is seldom recognized. The function of a boiler is steam-raising, and not water-heating; but this fact is too often lost sight of. With plants, where no economizer is installed in the flue, the feed is usually heated by means of the exhaust steam from the pumps, or, when running non-condensing, by the partial exhaust of the main engines. Although, however, the temperature in the heater itself may be sufficiently high, the lagging of the delivery range may be so neglected that a considerable loss takes place. Thus, when the changing of a valve necessitates the removal of some of the pipe covering, this should always be replaced, and, if necessary, by new material, after the job is completed. The fact that the feed pipes are usually underground in trenches, tends to slip-shod methods in this connection, so that a periodical examination is in all cases advisable.

Where the water supply is not too hard, the feed-water may be heated by means of "economisers"—systems of pipes heated by the waste gases from the boiler or kiln flues passing over them before they enter the chimney.

The following table shows the percentage of saving effected by heating feed-water previous to its use in a boiler working at 100 lbs. per sq. in. pressure:

It is apparent, that the more wasteful the boilers the greater will be the benefit derived from the economiser. The high temperature of this economiser causes any impurity in the feed-water to be deposited in the bottom boxes, where it is more easily removable, and is less likely to cause overheating, than it would if deposited in the boiler. The feed to economiser should not be less than 90° F., or it will produce condensation of the vapors in the gases, on the lower parts of the tubes, and this causes external corrosion. This will be avoided if the feed pumps draw from the hot well, or a small by-pass pipe may be connected from the water outlet on the economiser to the feed pump suction, thus taking the chill off the water entering the economiser. Where these economisers are fixed it is important to arrange a by-pass, so that the waste gases can be sent direct to the chimney when desired.



Longitudinal Section of Yorkshire Boiler.

With hard water the incrustation in the pipes is apt to be more troublesome than the scale in a boiler. Some means of removing the accumulations of soot from the pipes of the economiser must also be provided, or overheating will ensue. As the waste gases from many types of kilns are passed into the chimney at a very high temperature, several attempts have been made to utilize this heat for heating the feed water; the use of economisers diminishes the draught, however, and so often renders the use of a fan essential.

Economisers sometimes fulfill the promise of their name and sometimes do not. As feed-water heaters they are very efficient, but are rather expensive to install on account of the flue and chimney alterations, in addition to the actual cost of the economiser itself. They pay for themselves easily in four or five years, and often in less time if they are really well cared for. Even if economisers are not used, some form of feed-water heaters should be employed, and there is good reason for believing that even if live steam is used for this purpose, it is more economical than admitting cold water into the boiler.

There is an increasing disposition to avoid the use of economisers, and present practice points to the use of baffles in the boilers rather than economisers beyond them,

SEASON OF 1910.

| | Jan. | Feb. | March. | April. | May. | June. | July. | Aug. | Sept. | Oct. | Nov. | Dec. | Total. | Per Cent. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Taxes and Insurance.........$ | 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 900 | .225 |
| Depreciation, Interest, etc.... | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 3,000 | .75 |
| Freight ...................... | 300 | 400 | 400 | 500 | 500 | 600 | 1,600 | 1,600 | 1,000 | 1,200 | 1,200 | 1.200 | 10,500 | 2.625 |
| Material ..................... | ... | ... | 300 | 400 | 500 | 500 | 700 | 700 | 500 | 400 | 400 | 400 | 4,800 | 1.20 |
| Supplies ..................... | 50 | 50 | 50 | 100 | 100 | 100 | 125 | 125 | 125 | 125 | 100 | 50 | 1,100 | .275 |
| Kiln Coal .................... | 500 | 500 | 500 | 600 | 600 | 600 | 650 | 650 | 600 | 600 | 600 | 400 | 6,800 | 1.70 |
| Engine Coal .................. | 100 | 100 | 200 | 200 | 300 | 300 | 400 | 400 | 300 | 300 | 200 | 200 | 3,000 | .75 |
| Maintenance of Teams....... | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 1,200 | .30 |
| Expenses, Miscellaneous .... | 100 | 100 | 100 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 100 | 1,400 | .35 |
| Office ........................ | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 1,500 | 3.75 |
| Machinery Repairs .......... | 100 | 100 | 150 | 150 | 200 | 250 | 250 | 300 | 300 | 300 | 250 | 100 | 2,400 | .6125 |
| Kiln Repairs ................ | ... | ... | 50 | 50 | 50 | 50 | 75 | 75 | 50 | 50 | 50 | 50 | 550 | .1375 |
| Pay Roll ..................... | 100 | 100 | 300 | 800 | 1,200 | 1,500 | 1,800 | 1,800 | 1,800 | 1,800 | 1,500 | 1,200 | 13,900 | 3.475 |
| | $1,800 | $1,900 | $2,600 | $3,475 | $4,125 | | | | | | | | | |
| 4,000,000 brick. | | | | | | $4,575 | $6,275 | $6,325 | $5,350 | $5,450 | $4,975 | $4,250 | $51,10C | 12.775 |

where they tend to interfere with the draft. Undoubtedly it is better to catch the heat before it leaves the boilers than to try to stop it on the way to the stack.

Strictly speaking, the term "economiser" is confined to appliances in which the water is heated in its passage through tubes arranged in the flues, leading from a boiler or kiln to the chimney stack, but the same effect with fewer disadvantages may be secured by the use of live or exhaust steam.

A peculiarly simple form of live-steam feed-water heater of this type consists in delivering the water into the boiler, above the water line in the form of spray, so that it becomes heated by the steam before it comes into contact with the other water in the boiler. It is difficult to understand how such an arrangement can be economical, but it has proved to be so in some hundreds of cases. It is not improbable that the increased efficiency is due to improved circulation, as it is greater in ordinary, than in water-tube boilers. Steam feed-water heaters may be of either a tubular or open type and, as already suggested, may use either live or exhaust steam. In the tubular type, the steam does not come into direct contact with the water to be heated and so cannot contaminate it with oil or grease.

In the open type of steam feed-water heaters, the water is sprayed or dripped over trays in contact with boiler steam, and in addition to the direct saving of fuel by improved circulation, impurities in the feed are precipitated and the entrained air is either removed altogether or passes away into the steam. The removal of air is attempted in nearly all the exhaust and live steam heaters on the market, as its admittance to the boiler is known to set up corrosion, and it is said to assist in the formation of scale. Moreover, in condensing engines the work of the air pump is lessened and the vacuum improved when air is removed from the feed-water.

With a condenser and no economiser, together with one or two steam auxiliaries, the exhaust from the latter should be utilized to heat the feed-water supplemented if necessary, by steam from the receiver (if the engines are compound or triple). When both condenser and economiser are installed, the exhausts from steam auxiliaries (if any) should be used for feed-water heating, as "sweating" is done away with and all the heat in the exhausts is returned to the boiler, thus raising the efficiency of the steam cylinders, which would otherwise be very wasteful.

In many clayworks the exhaust steam is all required for heating the driers, so that this source of heating for boiler feed-water is seldom available, though many brick makers now use waste kiln gases.

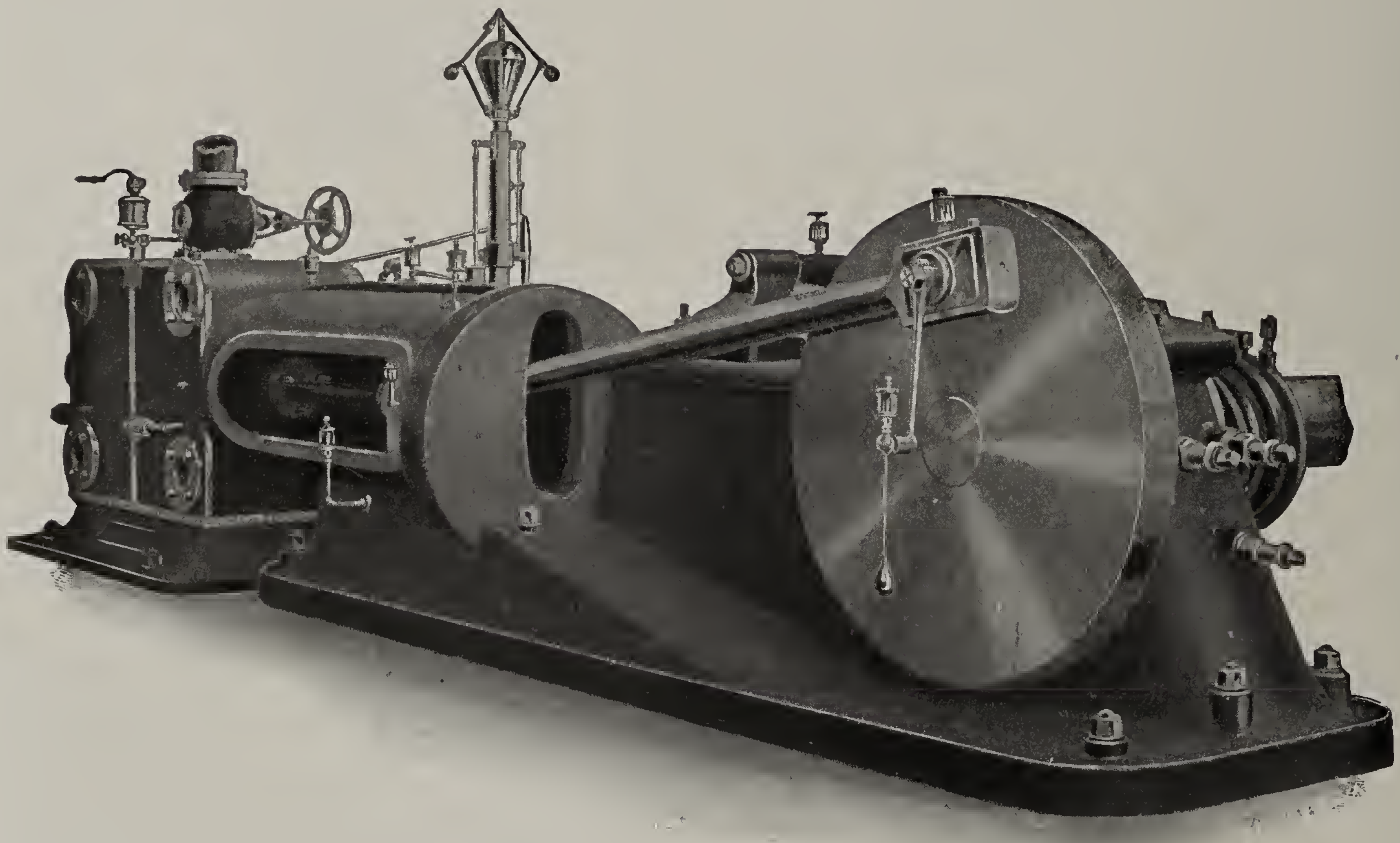
By careful attention to the supply of warmed water to the boiler, a saving of 20 per cent or more may be effected. The water is fed into the boiler by means of a pump or an injector; if pumps are used a pump governor is often advisable to maintain a practically constant speed of working, even under considerable variations of pressure tending to make the pump race.

Some boilers are fed by gravity, but this implies the existence of a considerable pressure of water or by a closed tank containing the feed-water, which is forced by gravity and steam pressure into the boiler.

The injector is an appliance by which the energy of a jet of steam is imparted to a column of water so as to force it, partly by suction and partly by pressure, into the boiler.

The principle on which injectors work is that a current of air or steam has the power to impart motion, in the same direction, to any other fluid with which it comes into contact. In the case of ordinary injectors steam is blown at considerable pressure through a small pipe and drags with it water from a surrounding pipe. The force of the moving water is so great that it can readily enter the boiler in spite of the pressure of steam and water in the latter.

There are several types in use, the best for ordinary purposes being those which both lift and feed the water into the boiler, thus doing away with the necessity for any



Modern Engine Especially Adapated for Clay Manufacture, Made by the Murray Iron Works.

head of water in the supply. It is also more convenient to have a self-starting injector than one with a positive action only. Injectors use as much steam as a pump, but as this steam is returned to the boiler with but little loss, and the instrument is so simply made that it is seldom in need of repairs, the use of injectors has become very extended. In ordering, regard must be paid to the work required, including the range of steam pressures, the temperature of supply water, the distance the water is to be lifted, or elevation of the water above injector, or water pressure in case the water is supplied from city pressure. Also the type of boiler to be supplied and the engine to be used.

Extremely high or low pressure reduces capacity, that is, the amount of water the injector will deliver. Hot water limits the steam pressure and reduces capacity. Long lifts limit steam pressure and reduces capacity.

Especial care must be taken that the injector chosen is capable of dealing with water at the temperature at which it is to pass into the boiler, or trouble will ensue, as some—if not most—injectors cannot deal with water at a temperature above 100° F.

### Causes of Trouble.

Some of the chief causes of trouble, met with in the working of injectors, are: Steam pressure too low. Feed water too hot. Admission of air in suction pipe. Stoppage in suction pipe. Dirty condition of tubes and cones. Injector too hot. Too great a lift of water. Each of these defects and much trouble and inconvenience will be avoided by periodical examination and cleaning.

In selecting an injector, the simplest one possible under the circumstances should be chosen and it should be fitted with great care in a position where it is readily accessible. It should be supplied with the driest steam available, a special pipe being run from the highest point in the boiler. Injectors connected to an ordinary branch steam pipe never work up to their full capacity unless the steam is superheated and not always then.

Some injectors never work satisfactorily because they are connected with defective valves on the steam and suction pipes, especially the former. The steam should never be within 18 inches of the injector or the latter will, in time, get hot and refuse to work. A good foot valve, on the suction pipe, is invaluable in getting the injector to start readily, though it is apt to be troublesome in frosty weather, as it holds the water in the pipe and unless the latter is well packed will cause damage by freezing.

A point often overlooked is the necessity, with most injectors, of having the overflow disconnected from the drain pipe; if they are directly connected, trouble and inefficient working results.

By letting the overflow drain into a waste pipe, provided at its upper end with a capacious funnel, these difficulties may be avoided and much mess may be saved.

When an injector will not work, the trouble is usually due to stoppage of the water or steam, or to dirt in the fine nozzle of the injector. It is convenient to have a strong thread turned on the nozzle of the overflow, so that in cases of suspected leakage a strong cap can be screwed on to it. Then on turning full steam into the injector, it will readily be seen where a leakage (if there is one) occurs.

Unless the strainer used is a very fine one, most injectors fill or choke sooner or later, and when a stoppage occurs, the first thing to be sought is possible dirt in the different pipes. Dirt at the delivery (boiler) end of the arrangement is specially troublesome and is usually due to scale forming substances in the water. It can sometimes be overcome by the use of a higher steam pressure, or by the substitution of an injector designed to work at low pressure.

Scale forming substances in the interior of the injector itself can only be removed by standing the nozzles in weak acid. The time of exposure must not be long enough for the acid to attack the metal, but sufficiently prolonged to secure the loosening of the scale.

The most usual form of pump for boiler feeding is direct-acting and either single or duplex, which has several advantages over some other types (such as the absence of dead centers, which enables it to be self-starting), and delivery accurately regulated by throttling the discharge, with consequent ease in adjusting rate of supply. Power pumps, run by belting from the shaft, are also often employed, but as they cannot run when the engine is out of operation they are subject to great disadvantages.

It is desirable to have two independent means of feeding the boiler, so that if one is out of action the other may be employed. When this is the case, the pump is commonly employed for daily use and the injector as an auxiliary.

In order to facilitate the cleaning of the injector or pump, a cock should be placed between the boiler and the feeding mechanism, and whether a pump or injector is used it should be examined at intervals and cleaned if necessary.

No boiler plant of any importance should be compelled to rely upon a single type of feeder device, but at the very least two independent systems should be installed. Then if one fails, the other may at once be put into operation, and the work of the plant carried on without interruption while the necessary repairs are being made.

A large number of boilers are fitted with water columns, including high and low water alarms, but the whistles, which should blow when the safety limit in either direction is approached, need frequent inspection to insure that they are not plugged so that they cannot blow, or be removed altogether.

Engineers frequently complain about the indifferent way in which work is attended to; therefore, it seems as if an effective alarm that is always on duty would be appreciated.

When these high and low water alarms are in use and a new fireman is put on he manages to have several alarms every day, but if he is competent for the position he soon learns to keep the water level steady.

### Steam Traps.

Steam traps or drainers have a three-fold duty to perform and a good trap should remove all condensed steam from the pipe at a given point. It should not allow any steam to pass out and it must do its work automatically and not require constant skilled attention.

Steam traps are of three main kinds—float traps, expansion traps, and bucket traps—the two first discharging their water rapidly and practically as soon as it is formed, but tending to waste steam, while the two last keep a considerable quantity of water in contact with the steam but are practically unaffected by variations in pressure and temperature of the steam and do not usually waste steam so readily as the expansion traps.

A really good expansion trap is often unjustly blamed for letting out steam, because, in acting rapidly, it discharges water at a temperature above atmospheric boiling point. This water boils violently on leaving the trap, but no live steam really passes. A bucket trap allows the water to cool before leaving; it shows little steam, but increases condensation by the contact of live steam with a bulky mass of iron and water.

The simplicity of construction and ease of repairs are important matters in the construction of a steam trap. All other matters depend on the idiosyncrasies of the maker or user and the number of patterns of steam traps now on the market is very great. Most of them work satisfactorily with careful treatment, but all require occasional examination and cleaning.

Care should be taken to repair steam traps as soon as they begin to leak, or they may prove to be greater steam wasters than savers.

The disadvantage of float and bucket traps lies in their bulkiness, due to the size of float or bucket required to operate the valve properly. But, on the other hand, the temperature of the water makes no difference. Those traps which depend upon the expansion of metals or upon the vaporization of liquids are likewise at a disadvantage, since the temperature under which they must work is not constant, and, consequently, if the trap is adjusted so as to give correct action at a certain temperature and pressure of steam, it will not act the same when these conditions are changed. And it is reasonable to conclude that the efficiency will fall off somewhat in proportion to the variation from normal conditions of working.

A perfect steam trap should be open for the discharge of water, whenever water is present at the valve, and should be tightly closed to prevent the escape of steam when steam is present. Consequently a trap which permits the passage of steam, even in small amounts, beyond the valve, cannot be considered as economically perfect.

Constructional points should receive careful attention so that repairs may be made with a minimum of expense and labor. Simplicity of design and fewness of moving parts are desirable, since they lessen the liability of accidents or failure to operate.

The interior and working parts of the trap should be accessible for examination, without removing the pipes to which the trap is attached. The use of springs for opening or closing valves is not to be commended; they are affected by the heat of steam and may be subject to corrosion, either of which would render their action erratic and unreliable. Finally, a trap should act well in any one of several positions, since it is not always convenient to have the piping arranged to suit the make of trap. Float traps, for example, must lie horizontally.

For obvious reasons, steam traps should always be placed at the lowest points in the steam pipes they are intended to drain, and at least one trap should be near the engine.

When a good steam separator is placed near the engine stop valve it is generally assumed that dry saturated steam is passing from it to the engine, and the weight of drain from the separator is deducted from the gross feed-water pumped in the boiler.

### Superheaters.

Superheaters may be of the boiler flue or combustion chamber type, or they may be independently fired. For clayworks the former is preferable as it uses heat from the flue gases which would otherwise be wasted.

Superheaters should be made throughout of mild steel, of great tensile strength and ductility; they should be conducted so as to be easily accessible at all parts for cleaning the tubes while at work, and also for protecting the superheaters from harm, during the time steam is first being raised, by shunting the gases through a by-pass. When at work the whole of the gases should be compelled to pass among the superheater tubes in order to ensure the greatest efficiency. The effect of this is to greatly increase the degree of superheat, and the damper used for this surface affords a means of controlling the degree of superheat. The steam inlet and outlet should be independent of the covers so as to avoid removing the pipes to obtain access to the superheater.

The commonest type of superheater at present in use consists of a top and bottom box connected by tubes, the top box being placed above the downtake between the boiler and the chimney, the tubes in the downtake itself and the bottom box in the bottom flue. The steam from the boiler passes first into the top box and then through the tubes and into the bottom box. It is then often passed through the tubes of a second superheater before going to the engine.

Many clayworkers are afraid that superheating may lead to complications or accidents, but there is no likelihood of this as the pressure remains the same whether ordinary or superheated steam is used. A little difference is required in the piping, special hydrocarbon oils for lubricating are necessary, and metallic packing (but not brass or copper) must be used in the engines, but these present no difficulties. In fact, all modern engines are now constructed so as to take a reasonable degree of superheat, say 100° to 150°, and metallic packings are now invariably used in high-class engines. The use of brass fittings, or copper, or phosphor bronze pipes should be avoided, as these metals deteriorate under the action of superheated steam; at the temperature of highly superheated steam, copper pipes will lose 30 per cent of their strength. Steel pipes and cast iron do not appear to be affected. It is now generally admitted that corliss valves will work satisfactorily up to a temperature of 500°F. For a very high degree of superheat, drop valves are most suitable, and the advice of a competent engineer should be obtained before high superheating is adopted.

It is not usual or desirable to add more than 150°F. of superheat to steam used in clayworking, so that any difficulties, which may arise with abnormally high superheats, are not likely to occur to brickmakers and potters. On the contrary, the use of a moderate degree of superheat is a great advantage by supplying dry steam to the engine and from the standpoint of economy it has been truly said that, "No device has ever been so generally adopted which saves as much fuel with as low fire cost and operating expenses as the several standard superheaters of to-day."

### Some Boiler Troubles.

Boiler troubles are almost inumerable, but the following are the most frequent in clayworks.

Corrosion.—By corrosion is generally to be understood the action of water or of some of its impurities on the plates of a boiler. It is usually due to acid in the water, or in the "scale preventers," or to galvanic action set up by pieces of metals other than iron which may find their way into the boilers. Sometimes oil from the engines undergoes hydrolysis and produces a corrosive acid. When acidity is the cause, the water should be made slightly alkaline by the addition of a little lime-water, as in "softening." To prevent galvanic corrosion, sheets of zinc are usually suspended inside the boiler, so that they are partly immersed in the water, and by their electrolytic action become attacked themselves, instead of the boiler plate. If the pitting becomes deep along the sides of the furnace, and is not continuous, the pit holes can be drilled and rivets fitted.

The introduction of air into a boiler through the feed pump causes corrosion, and, in order to minimize this evil, slow-acting automatic feed-pumps are usually fitted. As iron does not corrode when kept in bichromate solution even when air and carbonic acid are passed through them, Cushmann recommends—as others have done before him—that a small quantity of this should be added to the feed-water. According to his own trials, Cushmann found 1 lb. of bichromate for each 1,500 gal. of water actually in the boiler is sufficient, but this amount must be maintained by adding more bichromate each time the boiler is blown off.

Scale is a stone-like lining or incrustation found in boilers, and, in addition to its causing a waste of fuel, owing to its low power of conducting heat, a thick scale is very liable to cause local overheating of the boiler-plates and so is a prolific cause of explosions. Extensive tests by Schmidt and Snodgrass show:

That for scale-thicknesses up to ⅛ in. thick the heat loss may vary in individual cases from insignificant amounts to as much as 10 or 20 per cent.

That the heat loss increases with thickness in an undetermined ratio.

That mechanical structure of the scale is of as much or more importance than thickness in producing this loss.

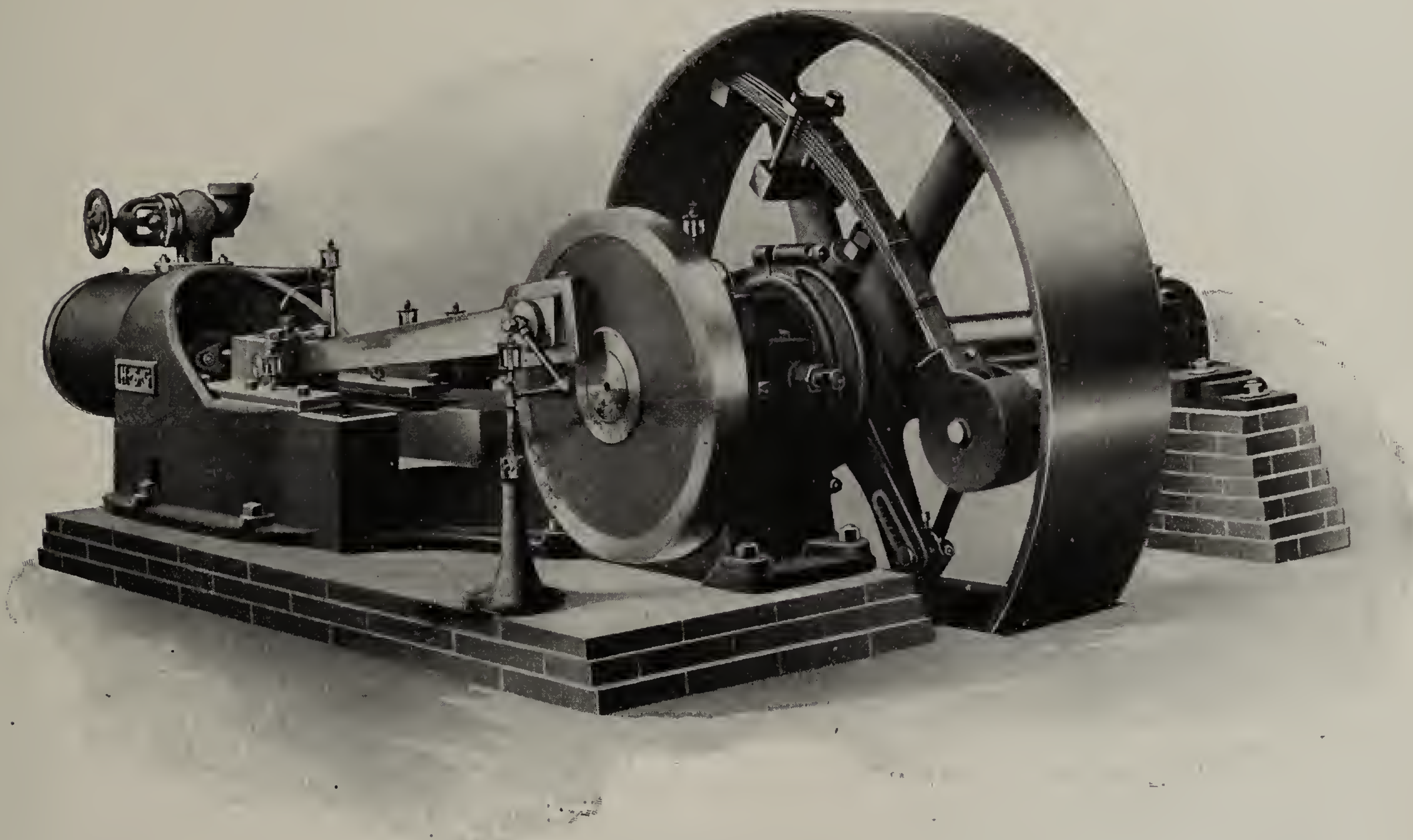
That chemical composition, except in so far as it affects the structure of the scale, has no direct influence on heat-transmission.

When a thick, dense and hard scale is present, the heat-losses are very much greater, and consequently it is necessary in such cases to adopt some method of preventing a scale from forming, or if this cannot be done, the water should be treated so as to produce as light and porous a scale as possible, so that this may be removed at each "blowing out of the mud" from the boiler. Indeed, the necessity of preventing the production of scale in boilers and feed-heaters can scarcely be over-estimated.

Scale is formed by the action of heat on water containing a variety of substances, of which calcium and magnesium carbonates and sulphates are by far the most important. The carbonates are removed by raising the temperature of the water, but the sulphates only form scale when a certain amount of evaporation has taken place and the incrustation formed is much denser and more stony than that produced by the carbonates.

Feed-water may be treated, either inside or outside the boiler, so as to prevent the formation of scale; the former method, when possible, is by far the better. The precise method of treatment must depend, to a large extent, on the minerals in the water. Thus, a water containing lime or magnesia carbonates, but little or no sulphate, may be effectively purified by heating it in an open feed-heater before admitting it to the boiler. In this case some means of filtering will be necessary.

Usually, the most satisfactory method of preventing the formation of scale, is to "soften" the water by adding certain chemicals to it before it enters the boiler. There are innumerable materials available, but the best are, lime, soda ash, caustic soda and baryta.


Engine for Clay Manufacture Made by the Houston, Stanwood & Gamble Co.

Patent anti-incrustators and scale-preventers should be avoided. In nearly every case they may be replaced by the materials mentioned at one-quarter of the price.

The desirability or otherwise of installing a water-softener is often difficult to ascertain, owing to the many considerations which have to be taken into account. Thus the using of water from rivers or streams is liable to cause trouble with the softening apparatus, owing to the great variations in the composition of the water used and considerable skill is required to overcome this. On this account where the proportion of "permanent hardness" (i. e., scale forming substances not removed by a feed-water heater) is not large, it is often undesirable to attempt their removal. This can only be ascertained by analysis of the water used, or, when its composition is variable, by frequent analyses.

On this account no general rules can be given, for each case must be separately considered on its own merits and in connection with its own special conditions, but it is well to remember that for small plants it will often be found that the use of a sufficiently large steam-fed, open feed-water heater will in general do away with the necessity of a water softening plant.

The actual removal of scale from the boiler itself must usually be accomplished by means of a hammer and chisel. Petroleum is sometimes employed to loosen the scale, but its use is accompanied by considerable risk on account of its great inflammability. Heavy mineral oil is far superior for this purpose. One of the best ways of using it is to allow the water in the boiler to cool completely, to pour in the oil and allow the water to run slowly out of the boiler. When completely emptied it is refilled with clean water heated as usual for a few days, and then again emptied and the scale scraped or chipped off. With very hard scale, however, it is best to have the scale itself analyzed by an expert, who will then be able to suggest a chemical which will soften it and so avoid the risks attending the use of a chisel.

The addition of washing soda or soda ash to the water will often effect a loosening of the scale without affecting the fittings of the boiler, but care is required in using all scale-removing chemicals, and they should only be employed under the advice of an expert who has no interest in the quantity of such chemicals sold.

Some engineers prefer to leave a scale about 1/8 in. thick in the boiler, especially at the water line, to prevent corrosion. This is particularly the case with water containing carbonate or sulphate of magnesia and salt, as these form a compound which is decomposed in presence of steam into magnesia and hydrochloric acid—the latter corroding the boilers.

As the scale is usually most abundant where there is least circulation of water, a careful study of the distribution of the scale will often give valuable information as to the circulatory system of the boiler.

### Faulty Circulation.

Sluggish circulation of the water in a boiler leads to a number of troubles, of which the most important are defective steam-production, overheating and priming.

The water circulation is sluggish in the bottom of Cornish and Lanchashire boilers, because the water there lies below the bottom of the furnace flues. At one time this was aggravated by the bad practice of bringing in the cold feed-water there, which is now always brought in above them. It may be prevented by careful designing of the boiler, by the use of inclined, expanded, internal flues—as in the Yorkshire boiler—or by the use of a circulating appliance in which a large ball or flask becomes filled with steam and water which is cooled and then acts as a siphon-pump, drawing more water and steam from the water-level of the boiler through the funnel. Incidentally this arrangement collects any grease and scum which may be floating in the boiler, so that the "ball" should be emptied occasionally. It is known as the "Hotchkiss" circulator.

Overheating and collapse of the plates are usually caused by faulty circulation in the boiler due either to faulty construction or to a deposit of non-conducting matter. No danger due to the plates becoming red-hot can occur so long as these are clean, free from grease and are well covered with water in free circulation.

The case becomes otherwise, however, when the water side of the plates is covered with scale or grease-deposits. Particularly dangerous are the deposits of oily and fatty matter, which are the result of decomposition of the grease into fatty acids which often combine with boiler deposit, or scale, to form a troublesome coating, when boilers are fed with greasy water. In these cases, the cause of overheating is probably the presence of a slight cushion or film of superheated steam between the boiler plate and the scale or greasy deposit; as this steam is unable to escape, overheating of the plates is bound to occur.

It is not the very high grade mineral oils which decompose and give serious trouble in boilers, but cheap, low-grade oils, and particularly the oils used in lubricating the auxiliary engines and deck machinery. These oils emulsifying with the feed-water cannot be separated by any form of mechanical filter. As many of the oily particles are about 1-100,000th of an inch diameter, their absolute removal can only be obtained by the use of a coagulant, such as alum and soda, and subsequent filtration.

Mineral oils do not decompose into fatty acids, but occasionally they attach themselves to particles of scale and produce a similar result in a rather different way.

The best method of preventing overheating is to employ a good fireman and to use a well-designed boiler, taking every care that no oil or boiler-scale gets into the boiler. A common source of trouble is the use of exhaust steam to heat the feed water of the boiler by blowing it directly into the latter. There is no justification whatever in such an arrangement, as the feed-water can be almost as efficiently heated in other ways and still kept free from oil. Exhaust steam invariably contains oil in so fine a state that it cannot be freed from it by simple filtration.

Practically no oil is ever present in the harmless looking deposit found on the crown of a collapsed boiler furnace, simply because the temperature of the plate has been so high as to drive off the oil by distillation; but if the deposit is scraped from other parts of the boiler, it will, on analysis, never fail to afford a solution of such furnace accidents as are sometimes termed "mysterious" by those who do not realize the dangerous effects of a very slight coating or deposit rich in oil.

Mechanical action, which is present in all boilers due to the movements of expansion and contraction arising from the varying temperatures of the different plates, and also to the stresses brought upon them by the internal pressure, is frequently aggravated by chemical action.

In many boilers of the lap-jointed type, the shell or furnaces are out of the true cylindrical form, at least to the extent of the plate thicknesses. Owing to the continual variation of the pressure—at one moment tending to force the shell towards, and the furnace farther from, the cylindrical shape, and at the next instant the strain of the plate, when the stress is removed, tending to bring it into the original form—bending stresses are set up on the plate at the edges of the double thicknesses, by which action local detrition of the material takes place, known technically as "grooving". This action is analogous to the repeated bending of hoop iron, which breaks away surface particles and finally results in local fracturing. This grooving, if severe, may be expected in time to completely penetrate the plate, though in some cases it has been found, after having attained a certain depth, to become inactive, as if by the reduction of the material a certain elasticity had been attained which protected the parts effected against further wasting.

Where the ends of the boilers have too little breathing space, or the furnaces have not the necessary elasticity at the joints, of the plates, grooving is set up immediately over the furnace attachments, or on the flanged or angle ring connections of the furnace tubes. Where there is no chemical action in the feed water, these groovings may take the force of a thread or fine fracture, very difficult to locate, even to the expert whose experience teaches him what to expect, and this difficulty is considerably increased when the preparation for examination has been of a perfunctory nature and the defects are covered with scale or deposit. When chemical action is present, the local detrition becomes more pronounced and extended and is easily detected.

Priming, or the throwing of water violently into the pipes from the boiler, is usually due to oil or to soluble salts in the water, as water containing more than 200 grains per gallon of alkaline salts (especially sulphate) will foam, froth and deliver wet steam. This is technically known as "priming."

When waters rich in gypsum (calcium sulphate or sulphate of lime) are softened with soda the lime is removed but the sulphate portion and the soda remain in the water and may easily give rise to priming. In this way priming is a frequent result of softening waters containing gypsum, with soda. The substitution of baryta for soda will often prove to be the best remedy, this substance now being on the market at a suffiicently low price for its use in this connection. Oil is also a frequent cause of priming, when exhaust steam from the engine is allowed to enter the boiler without previous filtration.

If neither soluble salts nor oil are the cause of this trouble, the construction of the boiler should receive attention, as sometimes this is the cause of the difficulty, particularly if it has a poor circulatory system. In this respect, vertical boilers are more easily affected than horizontal ones, particularly when plates are placed in the tubes so as to distribute more evenly the work done by the different tubes. The general effect of such even distribution is to seriously reduce the circulation of the water, with the result that unless the boiler is worked at a very low capacity it will produce steam so irregularly as to be useless, if not actually dangerous.

Sometimes the water level will be normal and the steam dry, but suddenly, without any warning, it will rise and throw a considerable amount of water into the steam main. If the central tubes of such a boiler are considerably hotter than the outer ones, a more marked circulation of the water will take place, and this irregular steam production will cease.

If a boiler is badly designed and therefore "primes" the remedy is difficult. A circulating appliance may be employed, but if this fails to remove the trouble a skilled engineer of good reputation should be called in to advise.

When a boiler, which ordinarily works satisfactorily, starts priming or frothing the first thing to do is to lower the proportion of salts in the boiler water by the introduction of fresh feed-water and blowing off the old, care being taken not to raise the water-level above the normal. In blowing off, a small quantity should be let out at frequent intervals, rather than a large quantity at once and care must be taken not to have the injectors or feed pumps working at the same time as the blow-off cock is open.

### Boiler Explosions.

Explosions in steam-boilers are chiefly caused by bad material, bad design and bad workmanship; all these are structural defects; also over pressure; safety valves sticking; bad water which either eats the plates away or, by accumulation of scale and scurf causes plates to be burnt; allowing water level to fall too low, causing crown of flues to be burnt and excessive firing and raising and lowering steam too rapidly. The very great majority of steam-boiler explosions may be traced to one or the other of the causes set out above. The defects themselves suggest the remedies.

Overloading—working above capacity—is one of the commonest abuses engines, boilers and machinery are put to about brick-plants. Where the economy lies in such procedure it would be difficult to say. In fact, such practice is the very opposite of economy. The average man, when running a boiler or engine or brick-machine at 10 per cent over its limit really believes he is gaining that much. Arguments to the contrary seem not to reach him, but sooner or later he will be brought to a realizing sense of the truth of that assertion.

When a steam-power plant is installed it should be made large enough and to spare. Allow for a large surplus of power. The chances are that the machinery will take more power to drive than has been counted on; and then again, there are few clayworkers who are not making some sort of addition to their outfit that will need additional power.

## AN ACTIVE CAMPAIGNER.

Mr. J. M. Adams, secretary and manager of the Ironclay Brick Co., Columbus, O., and also president of the Ohio Association of Face Brick Manufacturers, has done perhaps as much as any other man in the campaign of publicity for brick, being especially active in the National Building Brick Association, of which body he is a director.

Recently the Ohio Association, believing that it was time to call a halt to the excessive express charges several months ago, at its own expense took up the fight against the express companies, and through their attorneys, filed a complaint with the I. C. C., which case was recently under consideration by the Commission at Washington.

J. M. Adams, Secretary and Manager of the Ironclay Brick Co.

The Ironclay company pays particular attention to the production of face brick, which have figured in the construction of many large buildings throughout the country. One of the most notable being the Advance Thresher Building, Minneapolis, Minn., which was illustrated in a recent issue of "Brick and Clay Record" under the erroneous caption of the Columbus Savings & Trust Building.

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

BRICK AND CLAY RECORD

Vol. XXXVIII. APRIL 15, 1911 No. 8

## EDITORIAL COMMENT.

"Be zealous in business, but not too zealous," is a good motto.

Too great a desire to make sales may result in running a full season without profit.

Most of the mistakes in extending credit and piling up "bad accounts" are due to an over-desire to make sales and "beat the other fellow to it."

What profiteth a man if he run his plant a whole year and loseth at the end thereof? Would it not be better to take fewer orders with a fair profit? A word to the wise is sufficient.

F. W. Grant writes in an interesting strain of "Brick" in Construction News, a portion of which we take pleasure in printing:

"Brick, when so considered as to include burned clay in all its utilitarian forms, has a history analogous to that of civilization itself. It even followed the general decline of the dark ages to the point of becoming one of the lost arts in England and other countries. Authentic records of the manufacture of brick cover a period of 41 centuries, beginning with a passage of scripture referring to the erection of the Tower of Babel in Babylon:

"'And they said one to another, go to (please notice also the probable origin of that familiar term among bricklayers, "go to"), and let us make brick and burn them thoroughly, and they had brick for stone and slime had they for mortar.'

"The earliest historical writings do not, however, carry us back anywhere near the time when the merits and usefulness of burned clay were first known and applied, which must have been in primitive times, resulting perhaps from observation of the effect of building fires on clayey soil. It is indeed proper to say that so far from history perpetuating the origin and record of burned clay, as it has that of all other manufactured building materials, burned clay has perpetuated history."

## CONCRETE BUILDING OVERDONE.

The "Architect and Engineer," a journal supposed to be a cement organ, an advocate of reinforced concrete construction for all purposes, now urges greater conservatism in the use of that material, a warning that is as timely as it is unexpected, for fewer materials have been more over-rated than has concrete.

Says that journal editorially in its last issue:

"Unbiased engineers will agree that concrete construction is still in the experimental stage, and that the constructions of the last decade have been done rather on a large scale without waiting in many instances for the outcome of proper tests, or studying the conditions to which the concrete structures had to be subjected. Since we know that concrete is destroyed, even by feeble acids and by alkaline solutions, why do engineers expose sewers, acqueducts and pipe lines to those corroding agents? * * * Water to be carried through aqueducts should be tested repeatedly, in order to find out if it carries carbonic acid in solution, which is sure to soften the concrete if present in noticeable amounts. Instead of doing this, millions of dollars are spent on that work with the result that the structures decay in the course of a few years, and the construction in question becomes a disgrace to the cement industry. * *

## PERSISTENT ADVERTISING.

A case is reported of a Baltimore advertiser who ran a four-line classified advertisement without change for 29 years at a total cost of about $2,000 and with a net profit of $100,000. While such methods would not apply to most lines of industry, yet it is a remarkable example of what persistency will accomplish in advertising, as well as in other branches of business effort. The wisest advertiser will not be led astray by the romantic aspect of this case. It is most universally conceded that copy for a continuous advertisement should be frequently changed. In this particular case the notable leaven was in the value of persistent advertising.

SURE TO GET A RISE.

**Successful men arrive** by using to good advantage the small helps, already found useful by others.

One of the most helpful and inexpensive aids to struggling humanity today is the small "Want Ad," which has been the turning point to which many successful men point as the beginning of their prosperity and road to wealth.

Profit by the experience of others and begin today to better your condition.

If you have the experience and "sand" necessary, and feel competent to take charge of a plant and run it, tell 7,000 owners of plants about it in a small ad. which need cost you no more than $2.00. Ten chances to one you will "get a rise." Those who take no chances have no show to win. Take one.

General View of the Plant of the Streator (Ill.) Clay Mfg. Co.

## THE STREATOR CLAY MANUFACTURING CO.

Streator, Ill., is becoming quite generally known throughout the United States on account of the large amount, as well as the excellent quality of clay goods manufactured there, both in paving and sewer pipe lines.

The Streator Clay Manufacturing Co. which produces a fine quality of sewer pipe, wall coping, vitrified drain tile of a very dark brown color and flue lining, is situated near Streator, Ill., and is exceptionally fortunate in its transportation facilities, having tracks of the Wabash and Chicago, Indiana & Southern Railways, extended into their yards, also switching arrangements with the Santa Fe, Chicago & Alton and C., B. & Q. railways.

The company owns a tract of 105 acres of land underlaid with a fine quality of fat gray fire clay, directly under a No. 2 seam of coal with sand rock under the clay which are mined together in a 9-ft. seam.

The buildings are quite extensive, the main building being 208x112 ft., four stories in height with a machinery wing 70x50, also four stories high. The engine room is 50x70 ft. and contains one 600-h. p. Lane & Bodley corliss engine and one 100-k. w. electric unit Allis-Chalmers motor, one compressor, one hoisting engine, one fan engine; also five 150-h. p. boilers made by the Frost Manufacturing Co.

The clay which is mined by coal miners is elevated in cars in a shaft near the clay sheds, pushed a distance of not over 60 ft., where it is dumped into dry sheds and run through the crusher, then to the dry-pans of which there are three of the Stevenson make, where a small amount of grog is added. After passing through the perforated screen plates, it is tempered in one of the three wet pans. Two Stevenson sewer pipe presses are used for molding the ware, which is dried by the Van Auken system of exhaust steam heat, on solid floors, for 48 hours.

The battery is composed of 11 28-ft. round down-draft kilns; 2 30-ft. kilns; 2 32-ft. kilns, and 4 36-ft. kilns. The sewer pipe are set four high, outside rings three high.

Coal is used for burning with an average of about 20 tons to the kiln. The kilns are of the open floor type.

The works are run continually during the 12 months of the year with a large force of men.

The officers of the company are: H. Green, president, treasurer and general manager; James A. Green, vice-president; James A. Connelly, secretary; Geo. E. Connelly, assistant manager, and James Park, superintendent. The Green brothers are largely engaged in sewer contracting work, in which they use a large part of the output of the factory.

## NEW KILNS NEEDED.

The Clymer (Pa.) Brick & Fire Clay Co. are contemplating the erection of a number of new kilns.

## ENJOYING INCREASED PROSPERITY.

The Gandy Belting Co. of Baltimore report that they are doing the largest business in their history, and in addition to the improvements made a year or so ago, which practically doubled their output, they have recently completed a third addition to their factory and are now building a fourth in order to take care of the demand for the Gandy Stitched Cotton Duck Belt.

The Gandy company carry in stock several thousand rolls of thoroughly stretched and seasoned belting, in all widths and plies, in sizes ranging from 1-in. four-ply to 30-in. ten-ply, ready for immediate shipment, the day the order is received, being one of the largest and most comprehensive stocks ever carried by any belt manfacturer.

The Gandy company has one of the most complete and interesting plants in the belting industry. A very large part of the machinery they use has been designed by themselves, and is built in their own plant, where their machine shop is very complete.

One of the most interesting advantages of the Gandy belt to brick manufacturers is the secret compound with which it is saturated, making all Gandy belts water, heat and steam proof. Full information can be obtained by writing to the Gandy Belting Company at Baltimore, Md.

## THE BURROWS ENGINEERING CO.

The Burrows Engineering Co. have opened offices in the Chamber of Commerce building, Minneapolis, Minn., with a force of civil and ceramic engineers, who are prepared to construct and rebuild brick, tile and clay plants complete. The company also installs driers and machinery of the latest models and methods. They are prepared to give estimates on installing plants complete from clay bank to cars with equipments for clay transportation, including cars and tramways.

Those who have clay which they desire to have tested may send it to this company, which is prepared to test all clays, giving advice as to the goods which it is especially adapted for making.

Those interested may address the company at 18 Chamber of Commerce building, Minneapolis, Minn.

## PLANT TO BE ERECTED.

The Cuyahoga Brick & Shale Co., of Warrensville, Ohio, have let contracts for the building of a new plant which will be one of the most modern and up-to-date in the state of Ohio, and will have a capacity of 50,000 building brick per day.

The machinery will be provided by the Bonnot and Frost companies. The plant will be established under the direction of the Rodgers Engineering Co.

## ANNIVERSARY CELEBRATION.

The Stephens-Adamson Mfg. Co., of Aurora, Illinois, held their annual banquet on April 1st, and celebrated at that time their tenth anniversary. The remarkable growth of the company, the close harmony of the organization and the brilliant prospects were the features of discussion.

Starting ten years ago with only a small shop and few employes, they present a remarkable contrast at this time to the original organization. The banquet was attended by the department heads and various branch managers, thirty-six of whom were present.

The original officers of the company still hold their respective positions; the wise and conservative leadership of these men, combined with their energy and aggressiveness, have been responsible, to a great extent, for the present prosperous and growing condition of the company. The officers are: W. W. Stephens, president; F. G. Adamson, vice-president and treasurer, and D. B. Pierson, secretary and general sales-manager.

The company has become especially prominent in the industries represented by this paper, and their conveying machinery installations, in many brick plants throughout the country, are sufficient testimony to the company's success in this line. It has been their argument that there were great savings to be made in the average brick plant by more effective and cheaper methods of handling the material. They have demonstrated this in many plants, and today their machinery is being used more and more for just these qualities. In handling the material from the clay bank or quarry to the dry pan, or in putting material into storage and reclaiming it for use, their conveyors are widely used. The reliable operation of this machinery under the most severe service has rapidly gained for it an excellent reputation, and the square deal policy followed by the company has made friends and permanent customers of all who have had dealings with them.

## BELTING FOR CLAY MANUFACTURE.

There is no disputing the fact that in all clay working plants, the most efficient and economical type of belting is absolutely essential. This is true, not only on account of the nature of the work and the conditions of service, but also because shut-downs for belting repairs or renewals are very costly.

The demands on not only elevator and conveyor belting but also belting for heavy power transmission are invariably severe, and there is no surer way of reducing the operating expense than by selecting a belt designed especially for the work.

Experience has proven beyond a doubt that high grade canvas belting is better adapted for brick plant use than any other, and although many other types of belting have been tried out, canvas belting to-day has a practical monopoly among brick and tile plant users.

There are as many grades of canvas belting on the market as there are of rubber or leather, and there is just as much difference between a high class canvas belt and a cheap one as there is between a common brick and a face brick.

There is a brand of canvas belting known as Rexall double-stitched belting which has gained rapid popularity with clay operators, and in both construction and quality it appears to mark a distinct advance in the canvas belting industry.

This belt is made by first stitching the inner plies separately, then putting on the cover and afterwards giving the entire belt a second set of stitches. Thus it appears that while the inner stitching holds the body of the belt intact, this inner stitching is never exposed to wear either from the pulleys or the material conveyed. The manufacturers claim that both of the outer plies can be entirely worn off before the service ability of the belting is impaired.

The illustration shown herewith is a photograph taken of a 30-in., 6-ply conveyor belt recently shipped, which was 912 ft. long and had to be cut in two parts for safe handling.

The Imperial Belting Co., Chicago, Ill., who are the sole manufacturers of Rexall double-stitched belting, report that they have received some very nice orders from clay operators this spring and will gladly send samples, descriptive matter and prices to those interested in securing high grade belting, every foot of which is covered by the company's iron-clad guarantee.

920-ft. Belt Made by the Imperial Belting Co.

Not being affected by heat or cold, or exposure to dry or wet conditions, this belt appears to be in many respects ideal for the work for which it is designed, and doubtless will continue to interest a larger number of manufacturers than ever before.

This company shows many testimonial letters from customers of long standing saying, that it is the most satisfactory belting they have ever been able to obtain.

## AN ELECTRIC INQUIRY.

A leading brick manufacturer in Toronto, Ont., writes asking if there is any plant in the country drying stock brick by electricity. The publishers are unable to answer this question and would be glad to have any information on the subject from those who have knowledge of experiments made along this line.

## A GOOD HABIT.

GET THE HABIT of reading the ads. in our Classified Department. They contain real news and also give a fair idea of conditions in the industry—who is wanting to sell; what is offered for sale—with reasons for selling.

The probabilities are you will learn something of advantage to you, or you may get a suggestion as to what you may have to offer for sale or exchange.

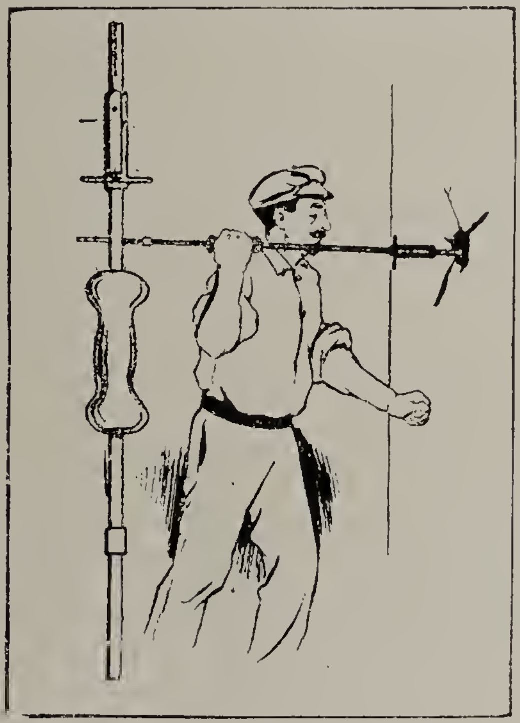
## WORK RESUMED.

The American Fire Brick Co., at Mica, Wash., has resumed work, both in its brick and tile departments.

# THE SUPERINTENDENT

## DRILL TO PIERCE BRICK.

An ingenious drill designed particularly for drilling holes in brick and mortar for the insertion of expansion bolts is the work of a Pennsylvania man. This is especially useful in piercing kiln walls. The drill is a long iron rod with a bit at one end and a hollow punch at the other. A hammer, shaped like a dumb-bell, slides back and forth on the rod, meeting at one end with a stop device and at the other end the outstanding head of the drill proper. To pierce brick or mortar the bit is placed at the point to be entered and the dumb-bell-like hammer driven rapidly back and forth along the rod. The impetus of its blows against the head of the drill will force the latter through the brick in less than no time. It is said that a hole can be drilled through brick in one minute with this instrument.



Device for Piercing Brick in One Minute

## ASSUMPTION OF RISK.

Assumption of risk, the supreme court of South Carolina says, James v. Fountain Inn Mfg. Co., 61 Southeastern Reporter, 391, rests in the law of contract, and involves an implied agreement by an employe to assume the risks ordinarily incident to his employment, or a waiver, after a full knowledge of an extraordinary risk, of his right to hold the employer for a breach of duty in this regard. Under the law governing this subject an employe may exercise the utmost care in the situation, and yet be held to have assumed the risks incident to his employment. Contributory negligence rests in the law of tort as applied to negligence, and, when such defense is established, the plaintiff's action is defeated not because of any agreement expressed or implied to assume the risks of employment, but because his own misconduct or want of ordinary care was a proximate cause of the injury. To be guilty of contributory negligence, the employe must by his acts or omissions contribute proximately and concurrently with the negligence of the master to produce the injury.

## OXIDE OF IRON FOR COLORING.

A writer in the British Clay Worker states that the color of red brick is due to oxide of iron, but, unfortunately, it is not possible to prepare this oxide artificially in anything like so fine a condition as it occurs in clay. Consequently, the addition of the ordinary iron oxide will produce an irregular darkening of the brick. They will, thus, appear blotched and uneven in color no matter how thoroughly the materials are mixed. Attempts at chemical precipitation of the oxide in the clay have also proved abortive, as even then, the material is too coarse and is too unevenly distributed.

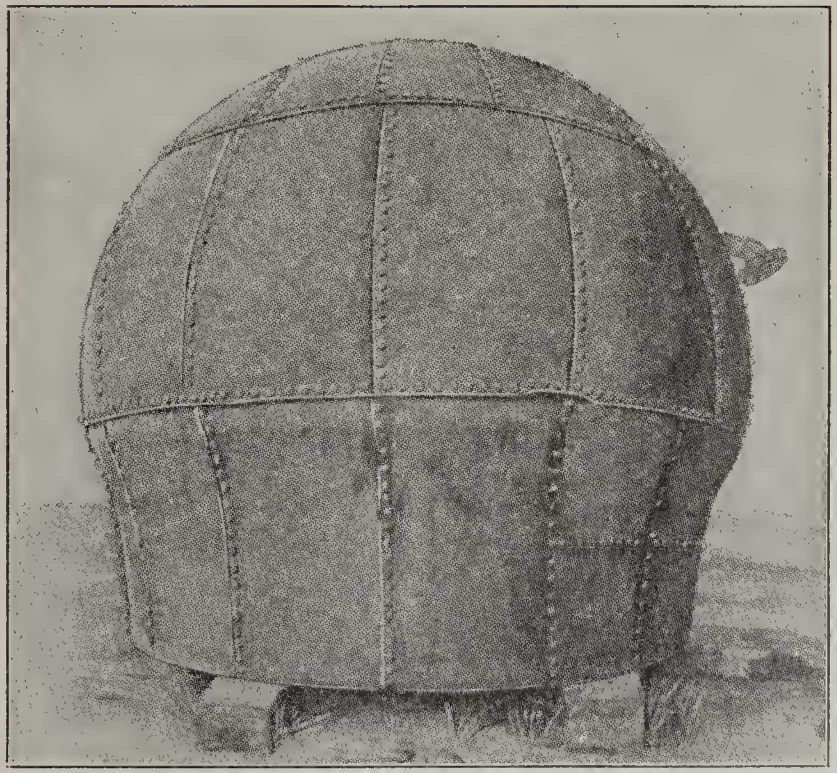
In a few cases a little iron oxide has greatly improved the color of roofing tiles, but so much depends on the nature of the clay that no general rule can be given. In fact, the color does not appear to depend upon the total amount of iron oxide present, but upon a variety of circumstances, several of which are not fully understood.

To improve the color of red-burning brick the best plan is to dip them in a slip of special clay. This is expensive, but satisfactory.

## AN OLD-TIME BOILER.

Actual examples of old-time boilers are very scarce, and this haystack type, one of the earliest, is now practically extinct, although this one example may still be seen at a colliery at Pelsall, Staffordshire, England.

It is composed of 49 irregular-shaped plates of various sizes, arranged in four tiers, with a circular plate at the top. The seams are single-riveted, some of the joints matching each other, while others are staggered. At the bottom of the boiler is a blow-off cock, while the feed pipe is placed 2 ft. from the bottom. A 2½-in. pipe with a projecting arm, fitted inside the boiler, was probably some portion of the old-time float-and-chain water gage and feed arrangement.



An Old Time English Boiler

## MORE DISCUSSION WANTED.

The columns of Brick and Clay Record are always open to criticism. We are glad to have the suggestions of our subscribers regarding ways in which we can be of greater service to the industry. We have just received a letter from a prominent clay products manufacturer, located in Rochester, N. Y., in which he criticises an article recently published, giving the opinions of a burner on the subject of salt glazing. We have no doubt but that our correspondent is correct in his criticism, and we are glad to publish his statement as follows:

"We never heard of a case where the damper is kept 'very low' while the kiln of clay ware is water-smoking. It is always the custom to have a full free draught to permit of the free expulsion of the dampness given forth by the ware in the kiln. This is in direct contradiction to all practical and theoretical customs.

"We furthermore cannot see how anyone can publish directions for burning ware, the character of which is not given in the publication and the rules therefore are to be assumed to be applied to almost any kind of ware and have the directions based upon time limits as in the article in question.

"It is most unscientific and misleading to make general statements of this character and to designate stages of burning by the shift. In our own plant even, we burn five or six different ways for the different kinds of ware we manufacture and do not do the same thing in any one shift for different classes of ware.

"Burning is divided into various stages, sometimes under the heading of water-smoking, oxidation and vitrification periods. These are general divisions which in each specific case would have to be more exact according to the temperature required for the ware in question. If the author of the article in question had used the designations employed in the foregoing sentence his article would have been more intelligent."

## BORING SHALE FOR BLASTING.

Hand boring is usually the cheapest, unless the material is exceptionally hard. Electrical hammers have not been very satisfactory with shales, and the plant necessary for compressing the air used in pneumatic hammers is apt to be costly. A rotary drill, driven electrically, would probably be better for the purpose, or if the borings are not too far from the engine house, a direct steam-driven boring tool may be used.

## LABOR-SAVING DEVICE.

Mr. J. D. Pratt, superintendent of the Excelsior Brick Co., at Menominee, Wis., says "Brick and Clay Record" is the biggest bargain he ever got for the money.

He says they have invented an original cable system, which they have found exceedingly useful at their plant, doing away with truckers, wheelers, etc., by means of which two men take care of 55,000 brick per day, taking them from the cable. Both up-draft and down-draft kilns are used at this plant which turns out about 7,000,000 brick each year with one machine.

## WANTS INSTRUCTIONS FOR BUILDING STACK.

A brickmaker from Tennessee wishes information for building a brick stack 50x75 ft., which will not crack. Cannot some of our readers enlighten him?

## SUITS BETWEEN PARTNERS.

At common law, the St. Louis court of appeals says, in the case of Gilliam vs. Loeb, 109 Southwestern Reporter, 835, a partnership was so far regarded as an entity that an action would not lie in favor of one or more partners against the others on a case springing out of partnership business until the affairs of the firm had been settled and a balance struck. In legal theory the several partners would have to be both plaintiffs and defendants in the action, which is not allowable; and this is the technical reason for refusing to allow an action until a settlement of the business shows an indebtedness of one or more of the partners to the others. There is said to be a deeper reason for the rule, i. e., that until an accounting is had and a balance struck the relation of debtor and creditor does not exist between the partners, nor can it be known that any member of the firm owes the others, because perchance, he may have advanced more than his proportion toward the capital, or in payment of firm debts, or have born an undue share of the losses, or may possess other effects against any demand on him by his co-members. Controversies and claims between members of a firm come under one of the heads of equity jurisdiction, and usually partners must seek relief against each other in chancery. But there are exceptions both real and apparent to this rule. If only one matter or item is in dispute between partners, an action at law may be maintained on the item, though there has been no settlement of the firm's affairs or balance struck. And sometimes a controversy between persons who are members of a partnership will appear on first view to have arisen out of a transaction connected with the firm's business, when really it stands on an independent footing, and may be the subject of a legal action between the partners, not as such, but in their individual capacities. Moreover, the courts appear to isolate a transaction in which a gross fraud or other wrong is perpetrated by one partner on his associates, and regard it as so far detached from the general partnernership affairs that it may be treated judicially as if all said affairs, except a single item, had been adjusted. This is nowhere said, but it seems to be the result of the adjudications.

## SWIFT DRIER INSTALLED.

The W. M. Fox Tile Co., Obion, Tenn., are selling their output as fast as they can produce the goods. They have recently installed a Swift patent kiln and hot drying floor which they say is the best they ever used, as the drying is done with exhaust steam at comparatively no expense, and they think it is a great boon for the average clay manufacturer.

## MAKES ENAMEL BRICK.

The Blue Ridge Enameled Brick Co., of Newark, N. J., have made quite a success of their chief product, enameled brick, in both English and American sizes, made in numerous shapes and various colors, as demanded by the trade.

Their plant is well equipped with modern machinery, being lighted with electric lights, and having a capacity of 25,000 per day. The clay is mined near the plant, and is of an excellent quality. W. W. Blanchard is general manager of the plant.

## USE TURPENTINE.

Where oil will not act as a cooling agent on a drill working in hard metals, turpentine used instead will permit the drill to take hold and retain its temper.

## DRAIN TILE ORGANIZATIONS.

The enterprise of a number of our drain tile manufacturers in the formation of local organizations is greatly to be commended. The conditions surrounding the manufacturing and marketing of drain tile are so different from those relating to the manufacturing and marketing of brick, that there is in most cases little affiliation between the two interests and the drain tile men have found it of advantage to have organizations of their own for the purpose of furthering their particular interests.

One of these associations is the Indiana Drain Tile Association, which holds meetings every three months, the last of these occurring at the Spencer House, Indianapolis, Ind., April 13th, which was well attended and profitable. The president of this association is Mr. Fred Oakley of Terre Haute; the secretary is Mr. Lee Goodwin of Curtisville, Ind.

An association which has shown much energy and enterprise is the Northwestern Ohio Drain Tile Association, composed of about fifty drain tile manufacturers, who meet every three months, usually in Toledo. Mr. Leo Childs is president of this association and J. D. Rumsey secretary. The last meeting of this association was held at the Boody House, Toledo, on April 11th, and was well attended and interesting. In addition to business matters which came before the association for consideration, a program had been prepared, features of which were a paper prepared by A. F. Greaves-Walker and C. W. Raymond, Jr., read by the latter and also a talk given by C. W. Lansing, editor of Brick and Clay Record, on the subject of Organization—Its Objects and Advantages. Some discussion followed, including interesting remarks made by Mr. George B. Drennan of the J. D. Fate Co., Plymouth, O.

It was suggested at the meeting that it would be to the advantage of the drain tile interests for the Ohio, Indiana and Iowa associations to co-operate to some extent for mutual benefit. The object of these associations is to create a better understanding among the members and to promote the use of tile through the increase of farm drainage operations.

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## UNDERDRAINAGE IN ONTARIO.

By Day.

Underdrainage has been known and practised in Ontario to some extent from the days of the early settlers, when the only materials at hand for pipes were slabs and stones. As the wooden pipes decayed and the stone ones filled with sediment, they gave place to clay tile; and for many years these have been laid in comparatively large numbers, and usually with gratifying results, as is shown by the fact that the most enthusiastic advocates of tile drainage today are those who have done most of it. Yet, despite this success, the practice of underdrainage has spread comparatively slow.

To be convinced of this, one has only to travel over the Province in April, May and sometimes June, and note the thousands upon thousands of farms in well settled districts, amounting to millions of acres, that are so wet in whole or in part that seeding operations are delayed from two to six weeks, then travel again in August, and see these same large areas producing only one-quarter to half a crop, while dry land in the same vicinity yields a full crop. In several cases practically whole counties need underdraining, and there are some counties where tile are not yet manufactured, and where practically no underdrainage whatever has been done.

With these facts before us, more strongly emphasized by widening experience and accumulating data, knowing at the same time that many farms and various districts, once wet and useless, have been transformed by underdrainage into the most productive in the land, one cannot but wonder why the practice has not spread more generally into other wet districts.

Contact with the people tells us why. To begin with, the results of underdrainage are not generally known, the immensity of which only an intimate knowledge of the facts will reveal. Secondly, the critical operations of drainage are even less understood than its benefits—farmers, generally, having no way of telling whether they have fall enough for underdrainage, what the grade of a proposed drain should be, no method of digging to a grade, or planning a general drainage system; and, fearing disaster in undertaking to drain by guess, they leave it strictly alone. Thirdly, there is an impression abroad that a poor man cannot afford to drain, as the cost is so great. And lastly, the scarcity of labor is preventing many men from draining who are fully impressed with its value. Five years of contact with hundreds of farmers eager for knowledge on drainage has led us to these conclusions.

### Results of Underdrainage.

In the spring of 1909, the Department of Physics, Ontario Agricultural College, which for several years has been making drainage surveys for farmers in all parts of the Province, wrote a large number of the men for whom surveys had been made in 1906, 1907 and 1908, asking them if they had put in any of the drains surveyed by the department, and, if so, to give their experience, paying special attention to cost of drains, difference in dates of seeding, difference in growing crops, and increase in yield.

Many responded to the enquiry, and their reports verbatim under their own names and addresses may be found in bulletin No. 174, entitled, "Farm Underdrainage: Does It Pay?" A general average of their reports shows the following: The increase in crops due to drainage was: Barley, an increase of 35 bushels per acre; oats, 30 to 40 bushels; peas, 10 to 15 bushels; fall wheat, 20 bushels; spring wheat, 10 bushels; corn, 20 bushels (shelled); straw, about doubled; hay, 1 to 3 tons. The following quotations, taken from daily papers one day in October, 1909, represent fairly well the prices during the year. Wheat, $1.00; barley, 58 cents; oats, 47 cents; peas, 90 cents; corn, 75 cents; hay in Toronto, $8; in Guelph, $8. Computing the value of the increases in individual reports, allowing a gain of half a ton of straw per acre, we find it to range from

$11.05 to $36.25 per acre, the average being $21.65. That is, each acre drained on the farms of these men has produced at 1909 prices, $21.65 more than if it had not been drained. The average will rise or fall with the market.

### Underdrainage as an Investment.

Some of our correspondents stated that their drains paid for themselves in one year, some in two years Even where the drains were put less than two rods apart and the cost ran up to $40 an acre, they paid for themselves in two crops. Has the farmer any other place where he can invest his money and have the principal returned to him every year, or every two years? But says some one rendered poor and kept so by the wetness of his land, we haven't the principal, and how can we invest it? For such cases the Province has long since made provision in the Tile, Stone and Timber Drainage Act (R. S. O., 1897, chapter 41; revised in chapter 22, 9 Edward VII., 1909), by which any township is authorized to borrow money from the Province to lend to farmers for underdrainage purposes.

When an individual wishes to borrow money in this way, he applies to the township council, and if it approves of the loan, it passes the necessary by-law, if one has not already been passed, and issues debentures which the Province buys from the consolidated revenue fund, and lends the money to the applicant, who pays it back on the installment plan, $7.36 per year for twenty years on every $100 borrowed.

Now tile drainage to-day costs about $14 to $40 an acre, depending on depth, distance apart, size and price of tile, kind of digging, etc., say $25 average; hence, the sum of $100 would drain about four acres, and if borrowed under this Act, the total annual payment would be only $7.36, or $1.84 an acre, while, as pointed out above, the annual increase in crop, reported by men who have put in drains, is $11 to $36 an acre. Surely a man is safe in borrowing $1.84 to get back $11 to $36. Surely that's a good investment. Surely even the poorest "can afford to underdrain" with this assistance.

The writer knows of at least one man who, with very little capital, bought a large wet farm under heavy mortgage, and at once underdrained it with money borrowed under the Tile, Stone and Timber Drainage Act. To-day, he is well off, and still not much beyond his prime.

A few men in the Province have long since known the rare investment offered by underdrainage, but as before mentioned, the spread of the movement was slow; indeed it is losing ground of late years; the number of tile manufactured in 1900 was 19,500,000, but in 1905, was only 15,000,000. In the latter year, the present drainage campaign was inaugurated, and in 1909 the tile output had increased to 29,000,000, nearly twice the number in 1905. Indications are that this year's output will be much larger still. The intense interest, the fever heat in drainage matters may be judged from the fact that the college has this year surveyed on request as much land as it did in the years 1905 to 1909 inclusive.

In 1905, drainage survey work was a small adjunct of the department of physics, and the surveys were made by the regular staff. In 1908, the department was given a special drainage appropriation sufficient to maintain a drainage staff of three fieldmen and one draftsman during the summer months. In 1910, the appropriation was quadrupled, so that this year our drainage staff has consisted of ten fieldmen, three draftsmen, one stenographer (two part of the time), and a supervisor, making fifteen in all. And yet we have not been able to make nearly all the surveys for which we have applications. Of the future, we cannot speak, but we hope that our department of agriculture will be liberal enough to enable the college to go as fast as demanded by the people whom it serves.

During the years 1905-1909, we surveyed somewhat over 14,000 acres; but the influence of our work is much broader than the actual area surveyed. At the conclusion of each survey, a drainage demonstration is held in the field surveyed. Methods of taking levels, determining grades. and digging to grade, etc., are demonstrated, and drainage in all its aspects is fully discussed. The effect of this educational campaign is seen in the facts that while we surveyed only 14,000 acres, the actual increase in drainage during those years amounted to 53,178 acres. And if each of these now produces $21.65 more than before, as reported by our correspondents, it is not hard to understand why this year we have had to survey 15,000 acres, a shade more than in the five preceding years combined.

To gain a comprehensive view of what underdrainage may mean, we must consider the Province as a whole, and estimate what proportion of it needs drainage. As a result of careful enquiry and statements of our drainage advisors, based on examination of many sections of the Province, I have made the calculation that at least one third of the cleared land of the Province, or 4,710,000 acres, is in urgent need of underdrainage. If this were all drained and each acre produced $20 more than it does now, the increase in crops would be worth $94,200,000, annually. The value of all field crops in Ontario in 1908, according to the report of the Bureau of Industries, for that year, was $164,077,000. Thus drainage of all the clear land needing it, might increase Ontario's field crop about 57.4 per cent. At the present rate, it would take one hundred years to complete the drainage.

But that does not tell the whole story of the possibilities of underdrainage. Ontario has 2,250,000 acres of slash land and 2,750,000 acres of swamp, marsh and waste land, or 5,000,000 altogether, much of which remains in this comparatively useless state only because it is too wet for cultivation. On much of the slash and marsh, a comparatively small amount of labor would do the necessary clearing, and underdrainage would reclaim the land and make it equal to the best. The swamp, too, when cleared, would yield to drainage in the same way. Thus an immense area could be added to the arable land of the Province.

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## NEW TILE PLANT.

It is announced that there will be a tile factory estab lished in Orangeburg county, near Bowman, S. C. The clay in the locality has been tested and found to be excellent for the making of tile. The placing of a factory in Orangeburg county will give an opportunity for a demonstration of drainage possibilities which is of peculiar interest just now, as the general assembly is about to enact a drainage law.

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## NEW USE FOR TILE.

Since irrigation is occupying such a prominent place in the public mind today, several projects are being advanced aong the line of sub-irrigation to eliminate the alkali from the soil.

Mr. C. R. Ball of Plainville, Tex., is, interested in a plan to establish a factory there for the manufacture of sub-irrigation tile.

# THE PAVING BRICK INDUSTRY

## THE NATIONAL HEADQUARTERS.

In accord with the action taken at the annual convention of the National Paving Brick Manufacturers' Association, held in Louisville in February, the headquarters of that association have just been removed to the city of Cleveland, O., where commodious quarters have been secured on the eighth floor of the Locomotive Engineers' Building. The removal of the main offices from Indianapolis has involved a large amount of labor and Secretary Blair has been exceedingly busy the past few weeks in getting settled in his new home.

It is thought that the change of headquarters will be greatly to the advantage of the association, Cleveland being a more central point, more nearly located to the larger number of paving brick manufacturers, and Cleveland itself being sort of a show city for the paving brick people. There are over 1,000 miles of brick paved streets and roadways in Cleveland and vicinity and many municipal and county engineers have visited that town to secure from observation a more thorough knowledge of the advantages of brick for street and road surfacing.

## BRICK ROADWAYS IN OHIO.

Never before has a State Legislature of Ohio been so interested in the subject of good roads, as that now in session at Columbus, O. In the majority of instances throughout the state, when road improvement is considered by the Boards of County Commissioners, vitrified brick or paving block is generally favored. A most striking illustration of this was when the Commissioners of Columbiana county called a meeting at Lisbon, to obtain views upon the construction of 50 miles or more of new roads this summer. Brick was wanted by all who attended this mass meeting, which was held in a theatre. The views of this session were impressed upon the commissioners, with the result that brick will be used entirely in all new work hereafter.

Similar action has been taken in Culumbiana county, and will be taken in almost every other county in the state.

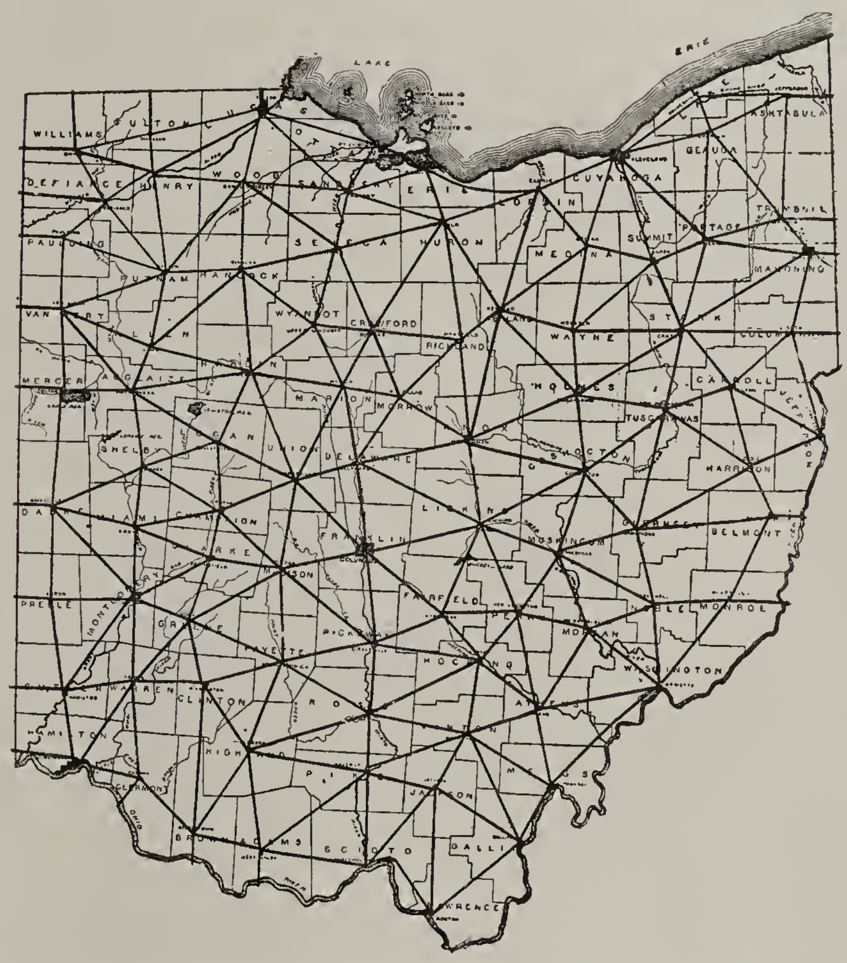
If bills introduced in the senate by Senators McGuire, of Tuscarawas county, and Hudson, of Scioto county, are passed by the legislature, Ohio will join many other states in the construction of an intercounty system of good roads, which would connect county seats and trade centers, and give throughout the state a continuous roadway tapping every section where traffic is noticeable.

The map published herewith, while not official, gives an idea of how extensive the proposed improvement in roads will be. It gives an opportunity to see at a glance what the system would mean to Ohio farmers and business men who have been held down for years by mud roads, which many consider nothing less than relics of the primitive age.

Senator Hudson's bill provides for a half mill levy on the grand duplicate of the state, which, it is estimated, would yield $3,000,000 annually for the cause of good roads. To this sum would be added another $3,000,000 contributed by counties. The gross proceeds would build at least 1,000 miles of improved roads outside of the roads built by the counties alone.

The bill provides that the $3,000,000 fund thus raised would be divided equally among the 88 counties of Ohio.

Building 1,000 miles of intercounty roads each year, the entire system, so badly needed in Ohio, would be completed in seven years, at an estimate of $6,000 per mile.

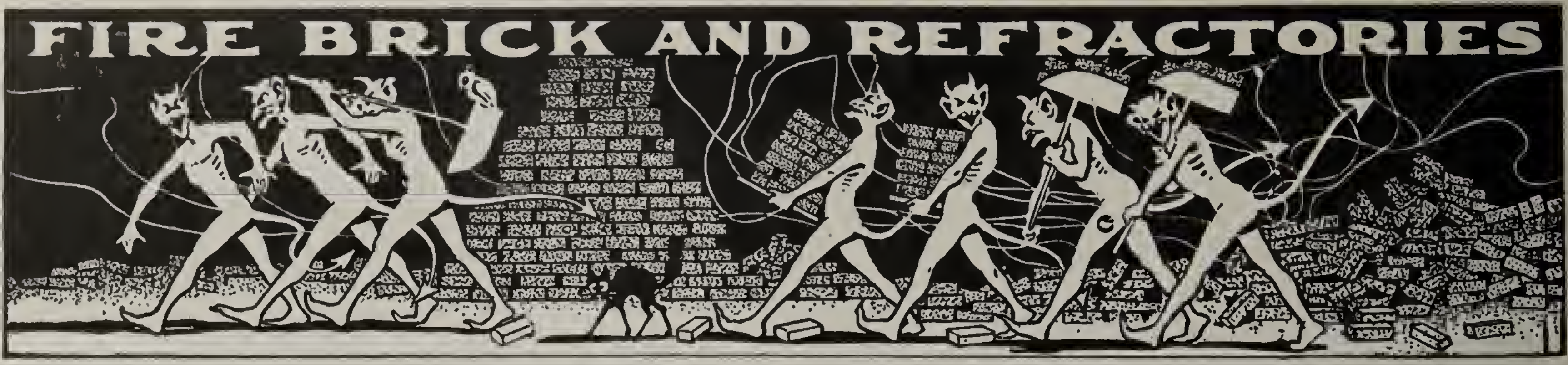


Map Showing Roads Connecting County Seats of Ohio, Demonstrating the Desirability and Feasiblity of a System of Paved Roads Connecting These Points.

Thirty-four petitions, asking for 120 miles of road improvement at an estimated cost of $720,000, are now on file in the office of the Franklin County commissioners.

## PREPARING FOR BUSY SEASON.

Preparations are being made in Detroit for a heavy paving season, and the city board of estimators are now at work preparing the budget. The commissioner of public works has sent in a request for a liberal allowance, much of which is to be used on the streets. In several parts of the city wood block pavements will be torn up and brick pavement laid. Judging by contracts received in Detroit, a number of cities in the state are also planning for extensive brick paving operations during the spring, summer and fall. In Wyandotte, the common council has recently accepted a contract for the extending of the South Biddle Avenue pavement to the city limits. Other suburbs of Detroit are also planning quite extensive paving and sewer operations.



## KITTANNING BRICK & FIRE CLAY CO.

With a capacity of almost fifty kilns, giving employment to hundreds of men and another plant under course of erection is the proud record of the Kittanning Brick & Fire Clay Co., of which S. C. Martin is president, R. G. Yingling secretary and treasurer, and E. C. Clark manager of sales. The general offices of this company are in the Empire building, Fifth and Liberty avenue, but two plants are located at Kittanning and a third has been built near Johnsonburg.

While the company was erecting a new plant Mr. Martin was giving his time to the sales department, and Mr. Yingling was looking after matters at the new property. One of the Kittanning properties was recently razed and improved and the capacity increased. The plant is built of brick, and is two stories in height.

At Johnsonburg, this company built a new plant during the last year, construction being completed during the late spring season. There are about ten kilns at the new property, and capacity is about 60,000 brick per day.

The enterprising and progressive Kittanning plant was the first in Western Pennsylvania to install an electric haulage system. It is the most complete of the character ever built and is a wonderful labor-saver.

In the remodeled plant at Kittanning the company has pans of the Stevenson pattern, and a new brick machine and pug mill will be installed.

At the new Johnsonburg plant the company installed a 250 horsepower Struthers-Wells gas engine, a Freese brick machine, two 9-foot Stevenson dry pans and a Ridgeway patent brick cutting machine and a repress.

A feature of the production of this company is its gray building brick, and it is an oft-repeated story among contractors in this district that the Kittanning company takes the lead in the sale of this character of building material.

The organization of this company in its commercial department is a most modern one. A suite of five rooms in the Empire building are elegantly appointed and the walls of several of these rooms are built up in sections of the different kind of brick the company manufactures. No other brick manufacturer's office in the Pittsburgh district is so cleverly arranged.

Inasmuch as every large manufacturer maintains an office in commercial centers, this company is no exception to the rule, and a string of offices and representatives have been established in New York, Cleveland, Buffalo, Boston, Philadelphia, Detroit, Chicago, Cincinnati and Atlanta. With orders always being sent into the home offices from these quarters there is little wonder that the company is always busy.

The story of the formation and the start of this rapidly growing company is a most interesting one, and a tinge of romance runs through it.

The opportunity which this company grasped came through the foresight of Mr. Martin, the founder of the company and its president: In 1890 Mr. Martin, who was a building contractor, became convinced the clay deposit in the vicinity of Kittanning was of a character superior to any in this country and with the idea of starting a brick plant there he organized a company in 1893. In the meantime 300 acres of land in that district had been purchased and the work of erecting the kilns, dry houses and other buildings was started.

The quality and extent of the clay fulfilled every expectation of the founder and the members of the company, and soon the demand for the brick from this factory was such that Mr. Martin abandoned the contracting business and devoted all of his time to the brick business.

The company was incorporated under the laws of Pennsylvania and the original officers remain in charge, the only changes in the membership of the company being the addition of some of the sons of the original members. The original company and the present officers are: S. C. Martin, president; William H. Duffell. vice-president; R. G. Yingling, secretary and treasurer; E. C. Clark, sales manager.

Mr. Yingling was associated with Mr. Martin in the organizing of the company. Mr. Clark is one of the best known and successful of sales agents and has made an enviable record in the brick business.

The company has had many advantages due to the period in which it started. At that time many new methods in the manufacture of brick had been adopted and a great amount of modern machinery had come into use, all of which the new company had advantage of and the plant, when completed, was then as it is now, one of the most thoroughly equipped brick manufacturing plants in the United States. During all of the succeeding years the company has kept abreast of the times and every improved method in brick manufacture is adopted as soon as its advantage is proven.

It was at first the intention to only manufacture brick for use in filling contracts for fire and paving brick, but a thorough investigation of the ground about Kittanning disclosed the fact that there was an abundance of the finest quality of clay underlying that section suitable for making high grade face building brick and it was decided to make a specialty of such products.

No mention of this discovery was made to anyone but the few invited to join in the proposed new company and when the first samples from the new kilns were ready for the market competitors in the brick business were amazed at the results.

The company has two distinct plants located about 600 feet apart. The erection of the second was due to the increased demand for the output of the factory. The reason for locating it at such a distance from the former one was to avoid the danger of having a complete shutdown of the plant in the event of a fire. By this arrangement the company is assured of having a means of meeting all its orders in an emergency.

Among the machines installed are the automatic cutters, doing away with the old hand process, which was never satisfactory, which drops on the bar of pressed clay as it is forced from the mixing, or brick machine, and cuts it into the desired sizes. The brick machine is an unique invention. Resembling a stone crusher, although longer and more tapering at the base, the clay is fed into it at the top; gathered up by an auger-shaped conveyor, the mass is forced out at the extreme end through a small opening the width of a brick.

This bar of clay passes on toward the cutter on a moving belt and when separated into the required lengths the pieces are transferred onto a swifter moving belt by automatic process and carried to where men are busy packing the bricks on cars to be run into the drying room. The automatic cutter drops when 24 brick lengths have passed into a position below it and this invention not only enables the same number of men to accomplish several times as much work as formerly, but reduces the labor more than 50 per cent.

Brick of every design are made at this plant. Among the specialties are numerous cornice ornaments and fancy designs for building corners and other decorative work. For these the clay is prepared in the same manner as for ordinary brick, and while in its green or pliable state it is forced into molds. A first-class draughtsman and a patternmaker are employed constantly at the plant designing and making new molds.

The products from this plant are shipped throughout the United States and Canada.

## PROSPECTS GOOD.

The Standard Fire Brick Co., Pittsburgh, Pa., thinks the situation looks mighty good. They say both prices and inquiries are fully as good as last year and that the proposed state road is going to furnish a large amount of work and there is also much borough work coming onto the boards.

The Kittanning (Pa.) Brick & Fire Clay Co. reports that more building is coming to notice every week, in towns between Pittsburg and the lakes, where it is going after business hard. The outlook for spring is regarded as quite favorable by this concern.

The Oliver Springs (Tenn.) Brick and Tile company's plant has resumed work after being closed down for several months. It is understood that many orders are on hand waiting to be filled. This company manufactures fire brick for all purposes.

## WILL OPEN PITTSBURGH OFFICE.

The announcement is made that the Toronto Fire Clay Company, of Toronto, O., will increase its output of face brick to 100,000 per day. This means that an additional selling force will be organized in the near future. F. P. Cuthbert, well known in brick circles, has been named to take charge of the new Pittsburgh office of the company, located at 1520 Oliver Bldg. One of the factories of the company known as the Little Giant, has been in continuous operation for 16 years, which is considered a record for a brick plant.

## PROSPEROUS TEXAS PLANT.

The Star Pottery Works, Elmendorf, Tex., informs us that they are enlarging their plant, which is at present 29,000 per day. They have a fine deposit of fire clay which they have been working for the past two years, owing to their past success, they say are going to go after the fire brick business "for all it is worth."

## WORK RESUMED.

The Soisson Fire Brick Co., at Connellville, Pa., has resumed operation in full at two of its plants, Volcano and Davidson. Orders have picked up recently and the two plants are now running full time.

## PLANTS OF THE HARBISON-WALKER REFRACTORIES CO.

Those who read the annual statement of the Harbison-Walker Refractories Co. in a former issue of "Brick and Clay Record" will probably be interested to note the location of the numerous plants of this company scattered throughout the country, most of which are kept busy throughout the year, in order to supply the vast trade in fire brick, which this company has built up. Eighteen of these plants are located in Pennsylvania, the home of the fire brick industry, at the following places:

One plant at Chester, Pa., for the manufacture of magnesia and chrome brick, and the distribution of dead-burned magnesite, magnesite cement, chrome ore and chrome cement. Capacity, 40,000 brick per day. One at Mt. Union, Pa., for the manufacture of silica brick. Capacity, 170,000 per day. One at Retort, Pa., for the manufacture of fire clay brick. Capacity, 50,000 per day. One at Phillipsburg, Pa., for the manufacture of fire clay brick. Capacity, 50,000 per day. One at Wallaceton, Pa., for the manufacture of fire clay brick. Capacity, 35,000 per day. Two at Woodland, Pa., for the manufacture of fire clay brick. Capacity, 50,000 per day. Two at Clearfield, Pa., for the manufacture of fire clay brick. Capacity, 100,000 per day. One at Grampian, Pa., for the manufacture of fire clay brick. Capacity, 30,000 per day. One at Figart, Pa., for the manufacture of fire clay brick. Capacity, 60,000 per day. One at Mill Hall, Pa., for the manufacture of fire clay brick. Capacity, 60,000 per day. One at Monument, Pa., for the manufacture of fire clay brick. Capacity, 15,000 per day. One at Farrandsville, Pa., for the manufacture of fire clay brick. Capacity, 30,000 per day. One at Pittsburgh, Pa., for the manufacture of fire clay brick. Capacity, 150,000 per day.

Other plants are located as follows: One at Portsmouth, Ohio, for the manufacture of fire clay brick. Capacity, 50,000 per day. One at Olive Hill, Kentucky, for the manufacture of fire clay brick. Capacity, 50,000 per day. One at Star Works, Portsmouth, Ohio, for the manufacture of fire clay brick. Capacity, 20,000 per day. One at Templeton, Pa., for the manufacture of high grade face brick, soft mud, repressed and machine brick. Capacity, 100,000 per day. One at East Chicago, Ind., for the manufacture of silica and magnesia brick. Capacity, 80,000 per day. And one at Birmingham, Ala., for the manufacture of magnesia brick, silica brick, fire clay brick. Capacity, 75,000 per day.

The Portsmouth, O., Times states that the Harbison-Walker Refractories Co. has landed the contract to furnish the brick for the new $50,000,000 Grand Central Passenger Station in New York. This contract means that several million brick will be needed for this mammoth structure, and aside from the monetary advantages derived from the sale the building will be a standing advertisement for the company. The brick are light colored and guaranteed to be impervious to the weather. The same kind of brick are being used in the new $225,000 high school which is being erected at Ironton, Ohio.

## SUCCESSFUL FIRE BRICK CO.

The A. J. Haws & Sons, Ltd., of Johnstown, Pa., is one of the fire brick companies which flourish in that locality, by reason of the great demand for their product by the various steel companies located near.

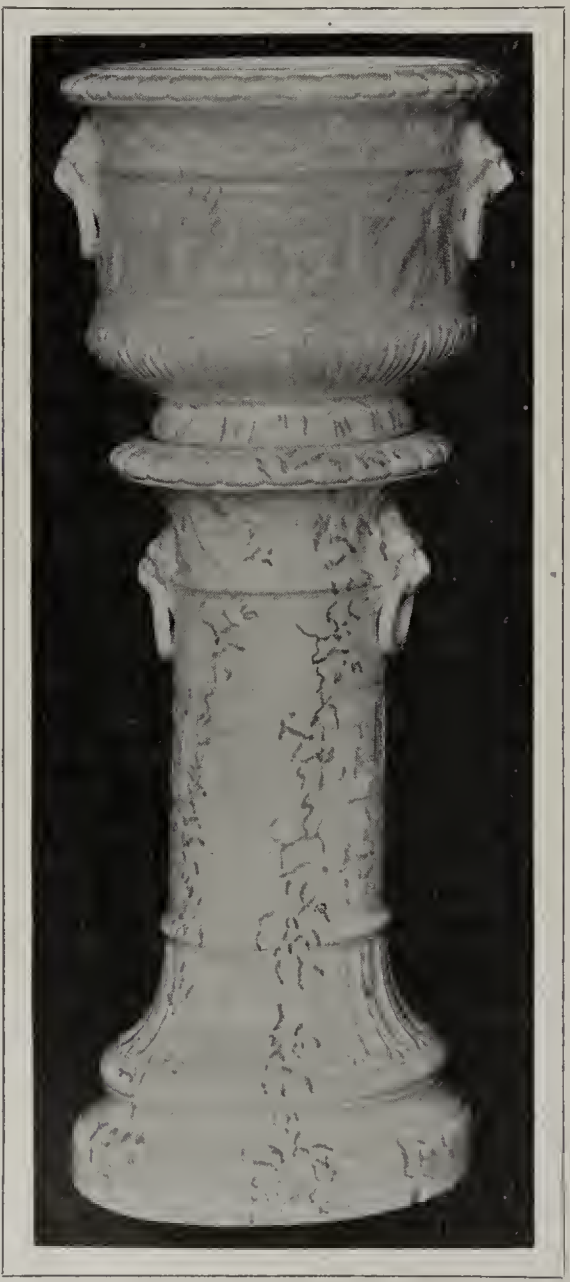
They manufacture nothing but high grade fire clay, and have a capacity approximating 40,000,000 per year. J. P. Thomas is general manager of the company.

# POTTERY NEWS

East Liverpool, O., April 13.—There has been somewhat of an improvement in the domestic pottery business of this country during the last fortnight, due to the glowing sunshine, which has brought a large volume of new orders to the manufacturers.

Rumblings are heard of plans being completed for the erection of several new potteries—one at Terre Haute, Ind., and another in this district. However final details are not announced.

The sanitary pottery trade is in a healthy state, and those in the Wheeling, W. Va., and Belmont County, O., territory are increasing capacity. This means that new business is coming in rapidly, and that the prospects for 1911 are exceedingly bright.



Jardiniere and Pedestal, Newest Art Pottery Made by the J. W. McCoy Pottery, Roseville, O.

There is no denying the fact that the business of the domestic potteries was not up to the standard during the first quarter of this year. The season was a closed one, with the result there was no new business moving.

From Europe comes the statement that serious trouble is threatened in the ranks of the operative potteries, but whether this will result in the closing of all plants or not cannot be told at this time.

Writing in the National Labor Tribune, Thomas Reece of London, Eng., takes occasion to comment upon the serious situation which exists in the foregin pottery district. He says:

"Serious industrial troubles have suddenly developed in the British pottery trade. This threatens to culminate in a general strike involving 50,000 operative potters. In the main, the pottery workers find serious fault with the workings of the conciliation board in their industry.

"The men's leaders argue that the present rules of the board, excluding from its consideration some of the most important trade customs, are not equitable and that the scope of the board should be enlarged to deal with questions of any character as they arise. The first conciliation board in this industry was formed 40 years ago and was reformed in 1908. The usual story that the men's demands if granted would make it impossible for the employers to continue business is, of course, heard. At the moment of writing, the position is critical."

The Murray Commercial Club of Murray, Utah, is in receipt of a letter from eastern people who want to establish a domestic pottery in that district. It is reported a large deposit of good clays for this purpose has been found in that locality.

Potters at Crooksville, O., who control the municipal situation there have turned down the offer of Andrew Carnegie to take $20,000 of his money for library purposes.

When stockholders in the plant of the Findlay Porcelain Co. disposed of their stock in that concern and erected a new plant at Carey, O., doubt was expressed by some in the electric porcelain trade whether or not the plant would be operated steadily. However, the announcement is made that the company has started operations with 50 employes and that the output has been disposed of for a term of one year, and possibly longer.

The limited partnership of the Mayer Pottery Co., at Beaver Falls, Pa., has been terminated and this old concern will go out of business. A new company has been formed, known as the Mayer China Co., which has the same stockholders, board of directors and officers, and will continue the business. A Pennsylvania charter for the Mayer China Co. was obtained last fall. Ernest and Joseph Mayer will, as heretofore, be at the head of the company.

When the ceramic collection of the late Robert Hoe, the great printing press manufacturer, was offered for sale, two brown stoneware jugs were auctioned off, bringing a total of $3,800. These were made in Germany in 1573 and 1591.

The Hall China Co., of East Liverpool, has commenced to manufacture underglaze decorated semi-porcelain hotel ware, and the firm is the only one in that district making such a line. There is a demand for this line of ware, it is said, and as the decorated lines are to be kept in stock, the plant will be operated to capacity.

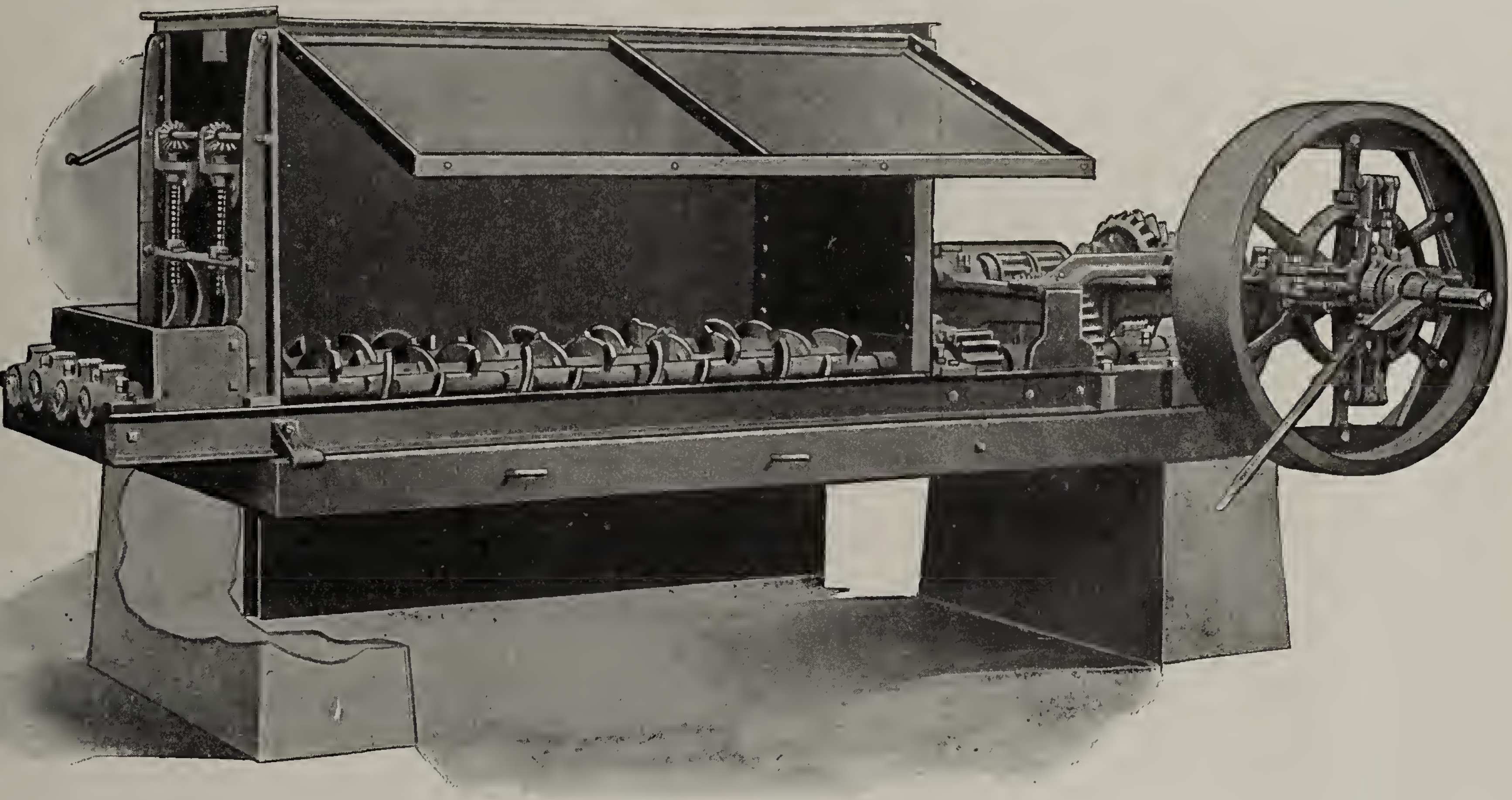
The annual report of the last meeting of the United States Potters Association, which was held in the Ft. Pitt Hotel, Pittsburg, has just been issued by Secretary-Treasurer Charles C. Ashbaugh, of the West End Pottery Co. It is hard at this time to tell where the 1911 meeting of the association will be held—Washington, D. C., or in Pittsburg.

## FATE CLAY FEEDER AND GRANULATOR.

The Automatic Clay Feeder of this type is a comparatively recent addition to the fraternity of clay working machines, and up to the near present, has not been the perfect machine it should be, but the J. D. Fate Co., with their accustomed promptness in such matters, began improvements on their second machine of this type and immediately brought it up to its present condition, which appears to leave nothing remaining to be added to make it the most perfect machine in its class now on the market.

The machine is spur geared driven parallel with line shaft, has no bevel gears to contend with, but all gears are straight and exceptionally heavy when compared with the duty imposed upon them. When driven at right angles to line shaft, only one pair of mitre gears are used and these are of extra large size.

The feature of the hinged sides and bottom, which allow of perfect access to all the interior of the machine, either for the purpose of cleaning out the machine or replacing worn augers, will certainly appeal to any clay worker who knows how unhandily some such clay working machinery is constructed.



The Improved Fate Clay Feeder and Granulator.

One of the most important features is the split augers with which the heavy shafts are equipped. These are arranged with the hub as a hinged clip so that any one auger can be removed and replaced without disturbing any one of the others, and by means of the hinged sides, access to these augers is an easy matter.

All of these machines are equipped with the very best of friction pulleys, so as to be always under the control of anyone near.

The amount of clay fed to the machine is nicely regulated by the sliding door at discharge end of machine, and this can be instantly regulated.

The saving of labor effected by this machine as the clay travels from the car to the machine will soon pay the cost of installation, to say nothing of a regular steady feed to the machine which in a majority of cases will greatly increase the capacity or output of the brick or tile machine.

The J. D. Fate Co. will give more complete information if requested.

## UNDER NEW MANAGEMENT.

It will interest our readers to know that Mr. Frank Salomon has become president and taken entire charge of the management of the Otto Gas Engine Works.

Since he took hold last year, the entire works and offices have been re-organized, and put on a modern twentieth-century basis. The result has already shown its advantages in the increased manufacturing facilities and greater output at less expense, enabling them to make a reduction in the selling cost of the engine while retaining its high standard of excellence.

Mr. Salomon is now turning his attention to the selling organization, and in addition to the branch offices in Chicago, Boston, New York, Pittsburg, Omaha, Kansas City, Minneapolis, and San Francisco, he is planning agencies to cover every square mile of territory throughout the country.

An extensive campaign of advertising is rapidly maturing, and it is safe to predict that the Otto products will enjoy a wider sale than ever before.

## OIL BURNING.

The question of Oil vs. Coal as a fuel for the burning of brick and tile is a matter attracting much attention in the clay industry at the present time. Tate, Jones & Co., of Pittsburg, Pa., have made a specialty of this subject for many years and have perfected a system of oil burning which is very successful. Their special engineering service is placed at the disposal of the brick industry and they furnish information and advice on this subject without charge to those who are interested.

Tate, Jones & Co. have just issued circular No. 135, which gives some very valuable information regarding methods for the application of oil as a fuel for burning clay wares, with some specifications and tables of considerable interest. A copy of circular No. 135 will be sent to any one on request.

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The Freeport (Pa.) Clay Products Co. reports booking an order for 7,000,000 paving brick.

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### THE PACIFIC COAST.

San Francisco, April 5, 1911.—The heavy rains at the end of February and the beginning of March caused considerable delay in building operations, and seriously hindered work at many of the brick plants throughout California. The storm was of unusual violence, and considerable damage was done by floods in the interior, though the actual loss is probably smaller than was at first estimated. The volume of building for last month was accordingly rather small in comparison with what had been expected. For the last two weeks, however, fair weather has prevailed, and from all indications this month will bring a heavy increase. The building permits granted in one week were the largest for any similar period in about a year past, and the brick men still have a lot of fine jobs in view. The prospect of the Panama-Pacific Exposition has brought out a great deal of work in the hotel line, and contracts have already been let for several important buildings of this nature, while the architects are working on a number of others. A good volume of public business is also in the market, especially for new schools.

The expected advance in common brick is beginning to appear, and both manufacturers and dealers are extremely optimistic in regard to the outlook for the summer trade. Nothing is being sold at present at less than $6.50 in the yards at San Francisco, and while prices at the kilns are still rather low there is some stiffening of the market all around. While this is due partly to curtailment of output, it is believed that the increasing demand will take care of everything that is put on the market during the summer. Local brick contractors are placing liberal orders in advance, assuring several plants of a steady run throughout the season, and a general revival of demand in other parts of the state is taking up large quantities of brick that would otherwise be shipped to San Francisco. One of the largest local producers has suspended operations for the present, and may be out of the market for the remainder of the year. The output of many outside plants was limited during the storm, but none of them were closed down entirely and by this time the majority are again working on about the usual scale.

New contracts for architectural terra cotta and pressed brick are now coming out at a good rate, and while one or two plants are still working on a small scale a busy season is expected for all. The capacity of California potteries is much greater than the possible requirements of the market, but the actual output is kept about equal to the demand, and as a rule fair prices are obtained.

The United Materials Company has taken a number of large orders in San Francisco for the new lines of pressed brick made at the Richmond plant of the Los Angeles company, and reports a good business in the various specialties produced only at the southern California plants.

N. Clark & Sons have had a fairly good run during the winter, but are now busier than for several months past. They have been shipping a large quantity of sewer pipe to the upper San Joaquin valley, and are now working on a large lot of pressed brick and terra cotta for the H. C. Capwell building in Oakland, Cal.

W. H. Edwards, of the Carquinez Brick Co., states that one of their kilns was out of commission during the storm, and it was impossible to do much work with raw materials at that time, but for the last week both kilns have been in full operation. This company is delivering brick on a large local school job, and has orders ahead for five or six million brick in the local market. A report was circulated here about the first of the month that this company had sold out, but this is found to be false.

The Golden Gate Brick Co. is now doing a general business in all descriptions of building material, and has just issued a 72-page catalogue with colored illustrations, showing its numerous lines of brick, sewer pipe, terra cotta, sand, gravel, etc.

The Western Building Material Co., selling agents for the Carnegie Brick & Pottery Co., are greatly encouraged in regard to the general situation, but especially with the recent demand for Carnegie fire brick. The cement plants, both here and in the north, are now using this material, and have placed large orders in anticipation of a busy summer. The Government has also renewed its contract with this company for fire brick for the Pacific Coast navy yards. The vitrified sewer brick made at the Carnegie plant is also in good demand, more having been sold in San Francisco than for many months past.

The Ione Fire Brick Company has been doing nothing in the way of production for the last month, but the plant is being put in shape for a big run, and will probably start up again within two or three weeks. The clay banks were badly soaked by the recent storm, but things are now drying out rapidly. Basing its calculations on last year's demand, the company expects about the best season in its history.

The polychrome work and glazed terra cotta on the Hearst building, furnished by Gladding, McBean & Co., is about completed, and while the building is still unfinished it is safe to say that this will be the finest polychrome job, both in design and execution, that has ever been set in San Francisco.

The Golden Gate Tile Co. of this city, owned by H. N. and G. F. Gray, has been closed for some time owing to a suit brought by laborers for wages due. The Gray brothers have been ordered to appear in the United States court March 27 to show cause why the concern should not be declared bankrupt.

The Temescal Clay Products, recently incorporated at Los Angeles with a capital of $1,000,000, has secured a large clay bed near Corona, Cal., and is planning to install a large pottery plant.

S. C. Spear, a brick manufacturer of Spokane, Wash., was a recent visitor in San Francisco.

The Remillard Brick Co. has won a suit for title to a valuable tract of Oakland waterfront, which has been pending for some time.

The Oakland Paving Brick Co., near Decoto, Cal., expected to start work March 15, but was delayed by the storm. The plant will employ 70 men.

The California Pressed Brick Co.'s plant near Niles, Cal., which has been closed for the winter, is again in operation, with a large number of orders from private yards around the bay.

A Mr. Emerson of Susanville, Cal., is preparing to burn a large kiln of common brick, for which he expects a good demand during the summer.

The Pymont Brick Co. of Sacramento was re-incorporated sometime ago under the name of the Lincoln Clay Products Co., with a capital stock of $250,000. The company will engage in the manufacture of sewer pipe, tile, porcelain ware, etc. The directors of the company are Scott F. Ennis, E. S. Brown, Geo. K. Rider, C. E. McLaughlin and M. J. Dillman of Sacramento.

Edward R. Haton, a former employee of the Remillard Brick Co., at Oakland, Cal., has brought suit against the company for $5,000 he alleges is due him. He claims that he was employed by the concern under a fourteen-year contract as superintendent at $500 per month and a bonus on the business. He was discharged after one year and brought suit against the company for the above amount.

It is said that the estate left by Edward Canfield Sterling, the inventor of pressed brick, who died during the winter, is valued at $3,000,000, but on account of the peculiarity of the will, the widow and heirs are not allowed to draw upon the money or contract debts against the property and have not sufficient money to keep up their fine home at Redlands.

Michael Ruzick, a laborer at the plant of the K. & K. Brick Co. at Los Angeles, became entangled in the machinery which he was oiling and was whirled through the air, breaking his arms and legs and fracturing his skull, which injuries later caused his death.

Pottery and decorative terra cotta will be made in the new industrial village which is to be established near East Lake Park, Los Angeles, Cal., by the California Development Co.

### COLORADO.

The Colorado Pressed Brick Co., which recently purchased the property of the Colorado Brick and Tile Co. at Colorado Springs, has been incorporated and has a capital stock of $50,000. The incorporators are J. B. Urquhart, M. E. Urquhart and W. J. Miles. It is the intention of the company to enlarge the plant and install new machinery.

John B. Church, who has controlled and operated the Golden Pressed and Fire Brick Co. of Golden, Colo., has disposed of his holdings to stockholders of the Fairview Brick Co. of Denver and new officers are to conduct the business. The Golden property is valued at $225,000. The new officers are H. Stewart, president; James Knox, vice president and general manager, and L. D. Morris, secretary and treasurer. The offices of the company will be in connection with those of the

Fairview company in the Continental building, at Denver.

The property and equipment of the Royal Gorge Fire Clay Co. and the Diamond Coal Co. of Canyon City, have been purchased by Denver, Colorado Springs and Eastern capitalists, and merged under the name of the Midgdale Coal & Coke Co., with a capital of $250,000.

## CONFIDENCE RETURNING IN THE EAST.

New York, April 10.—Common brick makers in the Hudson valley and the Raritan flats are more optimistic than they were a week ago. Prices are twenty-five cents higher and some brick has brought as high as three-eighths. All manufacturers are using judgment in making shipments for open market business, and, in consequence, the supply is being kept close to requirements. Contract deliveries on business taken last fall and mid-winter do not figure in current transactions, but they are larger by about one and one-half bargeloads a day than they were last year.

The quarterly report of the superintendent of the building department of Manhattan, shows that the first three months of 1911 compared favorably with the corresponding period of 1910, as far as new building projects were concerned. As for alterations there is an actual gain for 1911 of 35 contracts and in value, $165,696.

There are now about 230,000,000 brick available in the Hudson valley instead of 350,000,000 counted at the first of the year, which shows a gradual consumption of the over-supply and tremendous contracts involving huge quantities of common brick have still to be let. About $80,000,000 worth of new projects are waiting to move ahead in Manhattan alone, not including the subway, and an estimate places the total of work on architects' boards in the metropolitan district at $72,000,000 as compared with the estimated total of $70,000,000 on April 1, 1910, and $61,000,000 on April 1, 1909.

These are the primary reasons why the brick manufacturers here in the east should be more confident as to the future. They fail to realize that the hesitancy which has been prevalent all over the country within the last few months is directly traceable to the prolonged expectancy of the trust case decisions and therefore is merely temporary. Architectural draughtsmen, according to the registrars at Columbia University and Pratt Institute are in greater demand than they have been at any time. This indicates that building plans are going ahead, but are awaiting filing,—pending word from Washington, and its possible effect upon the securities market.

A canvas of the Hudson river district shows that this tendency on the part of builders is being reflected in brick manufacturing circles. There is a tendency to "wait and see." Accordingly all the companies, with only one or two exceptions will make their opening date a little later this year. Some will not fire up until the first of May. Others will wait until the first of June, but a great deal depends upon the development of building activity in the market during April. Every foundation upon which estimates can be made inclines toward a period of normal building activity for the remainder of the year. Other facts ascertained regarding the Hudson river district are:

The reserve supply has been reduced from 350,000,000 to 230,000,000 brick within three months, or 120,000,000 cansumed since Jan. 1. The total number of cargoes of brick sold in this market since the first of the year is 267 representing 93,450,000 brick, which leaves a balance of 26,550,000 representing contract deliveries. The John B. Rose Co. has been the largest deliverer of contract brick. It is handling the municipal building contract, alone requiring in all 6,500,000 common brick. This job is taking 100,000 a day or an average of two and one-half bargeloads a week. This brick is being taken from the Roseton plant.

The average price obtained for common brick of the best grade during the first part of 1911 has been $5. It has frequently gone as low as $4.75 and sometimes has reached $5.50. At present it is strong at $5.25 a thousand with a market fairly active.

Arrivals during the week ending April 1 were 67, and sales 64. A year ago the corresponding week showed 61 arrivals and 63 sales. Prices then were $5.75 and $6.25. There were 150,000,000 brick in reserve at that time. Arrivals for the week ending March 25, 1911, were 41, and sales 37. Prices were $4.75 to $5.00. Arrivals for the week ending March 26, 1910, were 76, with 75 bargeloads sold at $5.75 and $6.25. It is evident that there is a decided strengthening in the market.

Shipments from districts during March gave Haverstraw 90, Newburgh 57, and Rondout and above 27. This leaves a distribution of only 93 bargeloads for January and February, represented mostly in covered cargoes and shipments, between thaws, from Haverstraw.

### The Front Brick Situation.

The front brick market is active for very peculiar reasons. The boards of aldermen in the Bronx and Manhattan have instructed the superintendents of buildings to conserve the building lines of the two boroughs. This means that hundreds of buildings are undergoing facade changes. In most cases the owners are putting in lighter materials, such as gray brick, architectural terra cotta and some limestone. Front brick and architectural terra cotta have the preference because they are cheaper and offer greater opportunities for artistic effects. Nearly every front brick distributer here has had a most active season during the enforcement of the resolution empowering the building superintendent to order immediate encroachments abated. Prices, however, have remained steady during the time when the work was being pushed along Riverside drive, but now that the order has been issued regarding Fifth avenue and some of the shopping sections, such as 14th St. and 42d St., there is a decided tendency to stiffen.

Current prices for No. 1 buffs delivered at buildings are $21 to $26 per M; grays and speckled, $25 to $32; Kittanning whites, No. 1, $26 to $30; Kittannings No. 2, $22 to $25; Old Gold, $27 to $33; Trenton or Philadelphia red fronts, $24 to $25; enamels for court work, delivered, English size, $70 to $75; American size, $60 to $75; seconds, $45 to $55; porcelain, English size, $70; American, $65, and seconds about $15 a thousand less than above quotations.

Most of these plants are working at about three-fourths of capacity. They have been operating at this rate practically all winter, especially those companies who have been following a campaign of publicity in suburban towns.

### Terra Cotta in Strong Demand.

Architectural and fireproofing terra cotta interests in this city have had a busy month in figuring on prospective work. There is a great deal of figuring going on according to statements issued by the Atlantic, Federal, New Jersey and New York Architectural companies, for the reasons stated in the front brick review; that is, owing to facade renovations. The fireproofing field is particularly busy in its estimating department, for the same reasons that bar and strip iron interests have noted a decided increase in orders.

Since the Washington place fire, in which 145 workers were killed, factory owners have been stampeding the building department to have plans approved for fireproofing stairways and erecting fireproof outside stair columns or fire towers. Terra cotta is almost invariably specified in this work, owing to the fact that it is more easily put up. The National Fireproofing Co. is just beginning to note the heavier call for this material and it is taking time by the forelock to keep the supply equal to the demand. How permanent this will be depends upon what action the board of aldermen and the state legislature will take regarding fire protection legislation. If a wholesale revision of the present building code is demanded and politics can be kept out of the revision board the market for fireproofing material in this district for the next few years, according to a representative of one of the largest fireproofing companies, should be much heavier than it ever has been.

Another factor in this branch of the eastern clay industry is the tremendous gain in the popularity of the terra cotta house in the suburbs. The building departments of Newark, Hoboken and Paterson show a large increase in buildings of this character over concrete, although persistent advertising is still giving the latter a good lead.

### Clay Products Trade Notes.

A building material show is scheduled for the Madison Square Garden next month.

The NeNoyelles Brick Co. at Haverstraw has begun to take clay from the bed of the Hudson opposite its plant. The clay is of deep blue and is practically free of all foreign substance.

The Rose Brick Co. is in the market for brick making machines, for the extensions to its Atlas plant. The office of Senator John B. Rose, president of the Atlas Brick Co., is 103 Park avenue, New York.

A. Wilfred Tuthill, in charge of the common brick department for the Sayre & Fisher Co., whose plant is at Sayreville, returned from a two weeks' vacation trip to Bermuda April 4.

Fiske & Co. will have a most elaborate front brick display in their new offices at 40 West 32d St. It plans to devote five rooms to the display of tapestry brick, showing different methods of using this material in interior and exterior decoration.

The Hand Brick Co. of Plainfield, N. J., is operating its plant at full capacity. It will follow the plan this year of filling its sheds full, and then operate on a scale commensurate with local demand until the close of the season.

The Valentine Brick Co. of Woodbridge, N. J., has discovered that its "Valentine" fire brick has been used for an entirely new purpose. "Brick and Clay Record's" eastern correspondent was visited by a Pinkerton detective recently. He wanted information as to the location of the plant of the maker of that particular brand of brick. He said that a client in London had bought a case of very costly silks, lace, etc., in South America. The goods were transhipped in New York. When the box was opened in London, a fine array of carefully wrapped "Valentine" fire brick was found, but not silks and laces. Inasmuch as duty had been paid on the supposed laces and silks before the box was delivered to the firm, the consignees wanted to find out who got the silks and so forth. They put the Pinkertons on the scent, and for a clue they sought the maker of the brick, to learn to whom he had shipped them in New York, probably to ascertain, in turn, who bought them, then to discover who was the contractor where the building was located, who the workmen were and lastly, who in the neighborhood or who among them would be likely to have access to the brick and also to a vessel just in from Brazil.

Negotiations are still in progress for the organization of an association of Hudson river brick manufacturers. The latest development was a conference between Senator Rose, George

Washburn and Robert Main at the Palatine Hotel, Newburgh, on April 6, when a plan was outlined for bringing the project to a head. Another conference will be called in the near future at which time the result of further investigation will be announced. The extent of the industry in this district may be more fully appreciated when we realize that on the Hudson river there are 535 machines in use, representing an investment of more than a million of dollars. In Rockland county there are 25 yards, Orange county 7, Ulster county 22, Green county 3, Albany county 4, Columbia county 3, Dutchess county 14, Westchester county 6. This gives a total of 84 yards on the river between New York and Albany.

The Willard Brick Co. of New York are to erect twenty-six houses in Germantown for the employees of their plant, also a bungalow for Mr. Willard and family.

Lewis Deringer, manager of the Canandaigua Pressed Brick Co., died recently from a stroke of paralysis.

A Jersey City newspaper gives the following estimate of the probable production of the Hackensack plants for this year:

| | |
|---|---|
| Mehrhoff Brick Co | 25,000,000 |
| Selter Bros. | 10,000,000 |
| M. Mehrhoff Brick Co | 10,000,000 |
| G. W. Givers | 7,000,000 |
| Gardner Bros. | 7,000,000 |
| Hackensack Brick Co. | 5,000,000 |
| Philip Mehrhoff | 5,000,000 |
| Edward Schmultz | 4,300,000 |
| Total | 73,000,000 |

It states that the brick business in that locality is in fair condition and prices are $5.50 at the yards, that not all plants will operate to their full capacity this season, but the figures given represent about what different makers expect to do.

## FROM THE SMOKY CITY.

Pittsburgh, Pa., April 11.—Building brick salesmen are well pleased with the outlook for a good trade this spring and summer. One well known salesman declared to the representative of "Brick and Clay Record" that business is very much better this spring than two years ago, and that sales are gradually increasing.

Paving brick manufacturers are elated with prospects, for it is declared more municipal work will be done this season than ever before. The state work this season will be of a generous character, and of course this will be noticed when the sales for the year are totaled up.

Sewer pipe manufacturers are eagerly watching the proposed plans of municipalities, so far as new sewer construction is concerned, and the prospects for a large business on this line this spring looks interesting.

There is an important accumulation going on in the stock of the American Sewer Pipe Co. More stock has changed hands of late, it is said, than is appearing on the surface. Chicago is noticeable in the sale of this stock, as well as the buying of the same.

President W. D. Henry presided at the annual meeting of the stockholders of the National Fireproofing Co., which was held in the general offices of the company in the Fulton building, this city, a few days ago. The directors had declared the usual quarterly dividend of 1 per cent on the preferred stock. This was made payable April 15 to holders of stock of record April 3. The many recent fires have stimulated the sale of fireproofing materials, and this has been reflected in the sales department of the National.

Following the stockholders' meeting, 14 directors were elected as follows: D. F. Henry, J. B. Finley, William A. Stone, John R. Gregg, James J. Booth, W. A. Dinker, E. H. Straub, John H. Jones, T. Hart Given, Hay Walker, Jr., W. D. Henry, Henry M. Keasbey, R. V. Johnson, R. W. Allison. While the meeting was not largely attended, many questions were asked by stockholders. Some wanted to know why the company is not paying more than 4 per cent dividends when it earned largely in excess of that amount.

President Henry explained that the directors thought it advisable to not only put some of the earnings into new plants, but to repair old properties so as to bring them up to the highest state of efficiency. This had been done.

President Henry reports that the company is doing a very satisfactory business, especially in dwelling construction, this new field of operation having furnished the company a big outlet for its materials.

Following the meeting of the board of directors of this company, there was a general meeting of the Salesmen of the Natco Co., an organization composed of all salesmen of the National Fireproofing Co. One of the most interesting features of this gathering was the address of P. H. Bevier, engineer of this company, with headquarters in New York. It was he who investigated the fire at the factory of the Triangular Shirt Waist Co., where 142 employes lost their lives. He showed views taken of the building, which was a fireproof structure. It was not damaged beyond the falling of the plaster from the walls.

T. P. Cuthbert, sales manager for the Toronto Fire Clay Co., with offices in the Henry W. Oliver building, has completed the arrangement of his samples and a pleasing room is the result. All grades of face brick are now being shown by this concern in its Pittsburgh office. Besides making complete lines of building brick, the company is as deeply interested in the paving end as ever, and sales are reported good.

With the Vanport Brick Co., works of which are at Vanport, Pa., the demand for their Roman face building brick was never as extensive as now. This plant is running to capacity, and sales are heavier than usual, at this time of year.

The Reynoldsville Brick & Tile Co. has started the construction of an additional kiln, at its works at Reynoldsville, Pa., which will give the plant a 10-kiln equipment.

Built at a cost of $150,000 three years ago, the plant of the Dillsburg Vitrified Brick & Tile Co., at Dillsburg, Pa., was sold a few days ago for $1,500 to A. U. Shaurer, of Lewisburg, Pa., who will place the property in immediate operation. The plant had been idle two years.

It is reported here that the construction of a new brick plant along the right of way of the Reynoldsville & Falls Creek Railroad will be started at an early date.

W. W. Whiting, of the American Clay Machinery Co., who makes his headquarters in Pittsburgh, is a busy man these days. "I never knew of so much new work to be on the carpet at this season of the year as is being experienced this spring," said Mr. Whiting to Brick and Clay Record. "From what I can learn, business is good with the manufacturers, and improvements are the order of the day. This, of course, is being reflected on the machinery makers, and we are getting our share of this new stuff."

The Equitable Brick Co., of Philadelphia, has sold ground in that city to a building syndicate which will erect two long rows of new brick dwellings. Construction is to be started within a month or so.

One of the largest orders for brick block which has come into the McKeesport, Pa., district for many years is that just recently booked by the Bowman Bros. & Co., of that city, for 800,000 block. This is to be used in the construction of the roadway of the 14th St. viaduct at Hoboken, N. J., and 160 cars will be required for transportation. The company got $25 per M., the value of the order being over $20,000.

The large plant of the Shawmut Clay Manufacturing Co., at Shawmut, Pa., has resumed operations, after the property has undergone a general improvement.

The Sharon, Pa., municipality bought 10 cars of vitrified paving brick when public bids were opened April 4. The brick are for street improvements.

It is said at Williamsport, Pa., that Ohio capital will spend $500,000 in erecting a new brick plant at Red Tank Station, near Williamsport, on the Reading Railroad, near Boiling Springs, Pa.

The Clydesdale Stone Co., of Elwood City, Pa., has started the erection of its new brick plant, a large force of carpenters just being put to work on the buildings. Building brick and pavers will be the product of this company.

Dry-pressed and sand lime brick is the product of the Pennsylvania Brick Co., of Altoona, Pa., which is the successor to the Altoona Pressed Brick Co. The plant is located at Grazierville, Pa. The sand lime end is to be developed on a large scale at an early date, so it is said.

At a cost of nearly $8,000 improvements are being completed by the Clymer Brick & Fire Clay Co., at Clymer, Pa. New kilns are being built, and the property is being worked day and night. Orders are excellent.

The plant and stock of the Mountville Brick Co. were sold by the receivers, W. T. Brown and M. E. Musser, to Frank S. Barr, agent for the A. B. Kready and other stockholders of the company. The consideration is placed at $10,800.

The Allentown Brick Co. has just installed a vertical fan, which they bought from the B. F. Sturtevant Co., of Boston. This plant will be placed in full operation at an early date.

Fire destroyed the plant of the National Glass Brick Co. at Connellsville, Pa., a fortnight ago. A loss of about $15,000 was sustained.

Operations have been resumed at the plant of the Glen-Gery Brick Co., at Shoemakersville, Pa., after a brief idleness.

Fire from an overheated kiln caused some loss to the plant of the Robert Taylor & Co., Philadelphia, manufacturers of crucibles.

Brick for 17,600 square yards of paving are wanted by John H. Moffitt, controller, Washington county, Pa.

A meeting of the proposed stockholders of the Pittsburgh Silica Sand Co. was held recently at Beaver, Pa. A plant for the manufacture of brick will be built, it is said, at Jackson Centre, near New Castle, Pa.

Additional kilns and an addition to the stock house are improvements being made at the plant of the McFeely Brick Co., near Butler, Pa. The headquarters of the company are in the Diamond Bank building, this city.

At New Cumberland, Pa., Lieby & Flurie have started operating a brick yard.

## THE CUMBERLAND REGION.

Wheeling, W. Va., April 12.—Clay manufacturers in all lines in West Virginia are getting their share of new business this spring, with the result that all the plants are active, either on part time or working full capacity. The paving brick and block plants in the Hancock county territory are as busy as ever, while the building brick manufacturers in this immediate territory are doing a good business. Idle plants are resuming. Salesmen representing out-of-state plants are also reporting an improvement in business, and that the demand for brick for building purposes is on the increase.

At Parkersburg, The United States Tile Co. recently booked an order for 40 carloads of roofing tile, which is one of the largest orders for this sort of material ever placed at one time. This material is to be used on the Model Workingmen's Homes and Hotels at Forest Hill, L. I., N. Y., a project being fostered by Mrs. Russell Sage. A 16-car shipment of tile from this plant was recently made to Dayton, O.

The Southside Brick Co. at Richmond, Va., has been formed with $50,000 capital stock. W. W. Haley is president; R. H. Barnes, secretary-treasurer; J. W. Holt superintendent.

W. A. Dodds is establishing a pressed brick plant at Hickman, Ky.

George T. Tidden of Moorefield, W. Va., is seeking information and prices in machinery for the manufacture of drain tile.

The Porter brick plant at Kenilworth, W. Va., manufacturers of fire brick for paving and other purposes, is working to the limit. Capt. John Porter, the "fire brick king," is at the head of this company, and of course there is no reason why the plant should not be busy under these circumstances.

The Richland (Va.) Brick Corporation will install a quantity of new machinery.

In connection with the recent order of the corporation commission for the discontinuance of a special low "internal improvement" freight rate on brick from Goldsboro to Durham, it is an interesting phase of the case that the commission proposes to take under consideration the whole scope of rates on brick for intra North Carolina shipments and probably make an order for general reduction within the next month or so. Those favoring such a move point out that the Goldsboro-Durham rate, which was considerably lower than the general rate in force, was proving entirely satisfactory to the railway people.

The Altavista Brick Company, Altavista, Va., has been incorporated for the purpose of manufacturing brick by H. F. Walker, E. L. Jones and B. F. Moore, with a capital stock of $10,000.

The Boston Brick Co., Houston, Va., has been incorporated with a capital stock of $25,000. The incorporators are H. W. Cosby, A. H. Vaughan and John Cosby.

The King Mountain Brick Co. has been incorporated at Abingdon, Va., with the following officers: J. W. Jefferson, president; Robert Goode, secretary; Jas. Cooley, manager, both of Abingdon. Capital $10,000, for manufacturing brick.

## MICHIGAN NEWS.

Detroit, Mich., April 10.—With the opening of spring Detroit and Michigan brick manufacturers are very well satisfied with conditions and prospects. Predictions made by different producers during the winter months that 1911 would be a record year for the industry are being borne out, and plants in various parts of the city and state are now running full time.

The building season is starting slower than was anticipated some weeks ago, but the reason for this is that contractors were probably afraid to take chances on the weather. As already stated, however, considerable figuring is being done and builders are not retreating from the stand taken some weeks ago when they said the 1911 season would be the greatest building year in the history of the city.

Detroit and Michigan brick and clay product manufacturers are interested in the action of the state legislature in killing the reciprocal demurrage bill, and it has caused shippers to urge a return to the rules of the railroad commission for 1909, and which, they say, were entirely acceptable to them. What is wanted is more free time, as well as regulations regarding "bunching." Now the allowance is 48 hours, and 72 hours is desired, because many cars are now 100-ton cars instead of having a capacity of 30 tons. There is no difference in the time given for unloading or loading each. Average credits is another thing that is interesting state brick manufacturers, and it is said the attention of the shippers will be drawn to this point.

The Combination Brick Co., Detroit, has increased its capitalization from $50,000 to $200,000, $100,000 common stock.

Fire recently destroyed M. Corey's tile sheds at 251 Dragoon avenue, Detroit. The loss is placed at $1.000.

During the past month fifteen new firms have filed membership cards with the Builders & Traders Exchange.

R. Seeley, a contractor and builder, has purchased 28 lots east of the G. R. & I. station, at Plainwell, and will build a number of brick houses.

Contractor James Hanley wants to be relieved of building a sewer in Fairview, a Detroit suburb.

Different Lansing contractors are bidders for the contract for the construction of the new hospital there.

"Pertinent Points and Legal Advice Along Building Lines" was the topic of an address given by Walter Oxtoby to the members of the Detroit Builders & Traders Exchange recently.

Brick manufacturers in different parts of the city are represented on the transportation bureau class in freight traffic, of the Detroit Board of Commerce.

W. J. Turner, of the Vulcan Brick Works near Norway, is contemplating installing labor-saving machinery this season. Last year the output was 2,250,000 brick, and it is likely that this season's manufacture will accede that figure. Fifty men are now employed in the plant, but it is believed the labor saving devices will cut down the working force. The plant is now being overhauled in readiness for operation.

The Puritan Brick Co. has located in new offices in the Penobscot building. The wall and interior finish are made up entirely of various grades of face brick, those manufactured by the company, and those of other concerns represented by the Puritan company. There are about 75 panels arranged of the brick, varying from 30 to 250 per panel, according to the size, colors including light and dark brown, white, gray, purple and shades of red. They are arranged and set with mortars of different colors and bonds to show exactly how they appear in actual construction. The panels are in false boxes, and new panels containing other varieties can be substituted at a moment's notice. The company operates a plant at Hamilton, which turns out 100,000 face brick daily. The officers are: President, William L. Holmes; general manager, H. W. Holmes; secretary-treasurer, H. P. Harding; Detroit sales agent, F. C. Solms.

"Business is quite satisfactory," said the Clippert Brick Co. "Our plant is operating steadily and will continue to do so through the remainder of the season."

The Grand Rapids Consolidated and the New Brick Co. have merged under the name of the Grand Rapids Brick Co. and has a capital stock of $100,000. Both plants are in the east end.

The United States Geological Survey, in co-operation with the bureau of census, has compiled statistics for the production of clay products in Michigan for 1909. Common brick, vitrified brick or block, front brick, drain tile, tile (not drain) and miscellaneous were produced to the value of $1,947,059, while the pottery production was $95,430, including red earthenware and miscellaneous.

Senator Bird, who is developing the village of Glendale near Wausaukee, Wis., hopes to interest parties in erecting a factory to use the clay found there and provide brick and tile for the growing needs.

## THE CHICAGO SITUATION.

Chicago, April 14.—While conditions are not decidedly improved in the brick line in Chicago, there has been at least a more favorable showing made in the past few weeks. It is true also that the weather has been rather against outdoor operations, and this has had some demoralizing effect on the situation. Then there has been a continuation of the strike between the steamfitters and plumbers, that has been assisting in stemming the industrial tide so far as building operations are concerned. It seems that there will be no immediate improvement in the latter conditions, and that the tie-up of work on a number of structures will continue for a time at least.

The question of an advance in wages is another matter that is up for consideration by the brick manufacturers here at this time. It is to take effect on May 1, and while not so marked as it might be, is one of the things that has caused some annoyance to the manufacturers in the past. The demands, as made by the workers, will not be met in full, but it has been given out that there will be some increase as a matter of course. It is simply one of the things to be looked for at certain intervals among the laboring classes.

In other clay lines there has not been any very decided change one way or the other. Conditions are fairly active, but not as much as they might be. This applies to sewer pipe, flue lining, coping and some others that are to be classed under a general head. Prices on all kinds of building material, under the head of clay commodities remain about as they have in the past month or so. This is normal, and while very good for some lines, is less pleasing in others. In the latter class, we may place sewer pipe, which has long been at a figure too low to insure a fair profit to the manufacturers. There seems to be no remedy for this unfortunate state of affairs, and the manufacturers will continue these prices for the present at least, or until some more definite action is taken.

It is conceded by practically everyone in the building material line that the present year will not be above normal. It appears that the majority of people are playing a conservative game and that they are inclined to hold up to a degree that will prevent the activities becoming large. This has been the conclusion reached in the past month. There seems to be foundation for the belief, as other lines are affected to a greater degree than the clay operations. In fact, the latter industry has been fortunate in having a larger percentage of business this year than many other industries.

The death of Mr. Sylvester Marshall, of the Bonner and Marshall Co., is learned with regret. He was a man who had many friends, and he well deserved them. He had done much to encourage the use of a higher class of face brick among the architects and users, and his name deserves to be enrolled among those who have striven to make the world better and more pleasant to dwell in.

The Hydraulic Brick Co. report, through Mr. Varney, that the demand for face brick with this concern is only moderate now. In fact, there has been less activity in April than there was in March. He attributes the lack of business to the effect of the strike here among the plumbers and steamfitters, which has tied up much work, and has naturally affected the brick industry.

The Chicago Sewer Pipe Co. has found the demand for its product to be very good, but, like the other sewer pipe concerns, reports that the prices have been less than they should be. Why this is so is plain. The average manufacturer could get a better price, but there are some who might agree to obtaining more living prices, and then quietly slip in a cut to the old price again. This has been keeping the prices at a figure so low that there has been very little in the way of profits for some months. Operations are being carried on about as usual at this plant, and it is hoped that there will soon come a time when the market values will be increased.

The Jenkins & Reynolds Co. find the situation to be somewhat improved in the past month. Mr. White feels that the future, while not very prosperous, will be much better than it has been in the past. The situation is at least as hopeful as it could be at this season, and the indications favor a more active demand with the continuation of desirable weather.

The Federal Terra Cotta Co., with a capital stock of $1,500,000, has been incorporated in New York. It has been incorporated in Chicago as well, and it is understood will erect a plant here for the manufacture of architectural terra cotta. This has not been verified, but is generally accepted.

The Carey Brick Co. continues to enjoy a brisk demand for building brick. This plant is being operated at full capacity now, and the report is that there has been a greater demand for brick than the company has been able to supply. The aspect of the stiuation is such that there is every indication of a brisk spring demand with the company.

The Western Clay Products Co., recently organized, say that the present demand for flue lining, sewer pipe, conduit, and kindred lines is somewhat slow with them. This is generally attributed to the weather. There is a strong belief that the future will see a much better demand for the above lines.

The Chicago Retort & Firebrick Co. see no material difference in the situation with them. There has been and the indications favor a very notable demand for all kinds of fire clay commodities, and there seems no reason to count on any change from this status of the situation.

The S. S. Kimbell Brick Co. say that there has been only a fair demand for face brick in the past with them. The situation is a trifle more encouraging, but not as active as this concern would like to find it now. The prospects are that there will be a more active demand in the near future.

The Allis Brick Co. find the demand for building brick just a trifle off at this time. The company's plant has been closed down for a short time to make same needed repairs, but will very shortly be in operation again, and at full capacity. There is no reason why the future should not be a pleasing one for them, and this is the view that must be taken of the situation.

The Mason's Supply Co. find little activity for burned clay goods now. There is likely to be a better demand soon, however, and this is giving them hope.

The Northwestern Terra Cotta Co. will not complete the building of the addition to its plant which was destroyed by fire until the latter part of June. Work is progressing very nicely, however. The demand for terra cotta is about on an average with that of the past few months.

The Illinois Brick Co. has declared its regular quarterly dividend of 2 per cent on capital stock, payable April 15. During the past year the Illinois Brick Company has built two miles of sheds at its plants to accommodate the machinery required for the Penfield setting device. Other Chicago plants which have been equipped with this invention are the National Brick Company, the Chicago Brick Company, the Carey Brick Company, and the Calumet Brick Company.

The Murphy & Lorimer Brick Co. will add to their brick manufacturing plant thirty-nine lots, about five acres, on Forty-second street, 135 feet east of California avenue.

Artist Allbright's "discovery," that excellent modeling clay is found at the bottom of the Chicago river, is not new. The whole town is underlaid with such clay. Indeed, in this particular, Chicago may be said to be a model town.

The Chicago Heights Star states that the Acme Brick Co., with A. L. Homa as secretary and general manager, has been organized there and work on the construction of a new plant has already been begun and it is thought by April 1 the plant will be ready for operations. The stockholders are largely mechanics who will engage actively in the work of manufacturing the ware.

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## OUR BUCKEYE LETTER.

Columbus, O., April 10.—Unless all signs fail, there will be some interesting news to be secured from the sewer pipe interests of the Buckeye state ere another month passes. This according to a report circulated here during the last week. It is openly asserted that because of the great demand for sewer pipe prevailing today that stocks will be low ere long, and this will naturally cause an increase in prices. This statement is not given as a bit of "official information," but as a bit of news that is picked up here and there among different sewer pipe offices.

Really, the sewer pipe manufacturers of Ohio are looking forward to an exceedingly busy year. Close watch is being given to all bond issues for municipal work, and of course where these bond issues carry at an election it means that the sewer pipe manufacturers will "come home with the bacon."

A vein of blue clay which is said to have been located by the Newton Falls (O). Tile Co., on its property, will be used for the manufacturing of encaustic tiling. It is reported the clay is almost of the same character as that used in manufacturing stoneware pottery.

The new plant of the Diamond Brick & Clay Co., which is located just south of Haydenville, in Hocking county, has been placed in partial operation. Four kilns have been completed and are now in use. Others are to be constructed.

The Union Clay & Manufacturing Co., at Empire, O., is manufacturing a good grade of fire brick in connection with its sewer pipe lines. The plant is a new one, and was recently described at length in "Brick and Clay Record."

Announcement has just been made of the action of the Ohio Tile & Brick Co., in increasing its capital stock from $30,000 to $50,000. The headquarters of the company are located in this city.

C. B. Elder, formerly with the Union Clay Product Co., of Akron, O., has taken the matter up with the officials of St. Joseph, Mo., with reference to locating a brick plant there. Elder has asked for information concerning the shale of that district.

Although the plant of the Claycraft Brick Co., at Groveport, near here, was destroyed by fire, causing a loss of $30,000, with insurance placed at $10,000, active work re-constructing the plant is progressing. The Claycraft Co. bought the plant of the Columbus Clay Products Co. J. W. Kaufman is president, and W. A. Miller is vice-president of this company. The plant will likely be in active operation within 90 days.

A new drier is being installed in the brick plant of Heinisch & King, at East Portsmouth, O.

About 35,000 blocks are being made daily at the plant of the United Brick Co., at Conneaut, O. Orders are coming in nicely, and the officials declare the plant is assured of being operated steadily throughout the season.

Although twenty tests were made, the Board of County Commissioners at Akron, O., refused all brick that was delivered to be used in the improvement of Kenmore Road at Akron. Of the twenty tests declared made, nineteen were declared to be below the standard 20 per cent.

At Lisbon, O., the plant of the American Sewer Pipe Co., which has been idle for several months, is being improved and will be placed in operation. Employes have been notified to report. Probably 100 will be given employment.

City officials of Richmond, O., recently went to Portsmouth, O., where the plant and product of the Portsmouth Paving Brick Co. was inspected. Over 14,000 square yards of street paving is to be done in Richmond this spring, and the council and other officials are "in the market."

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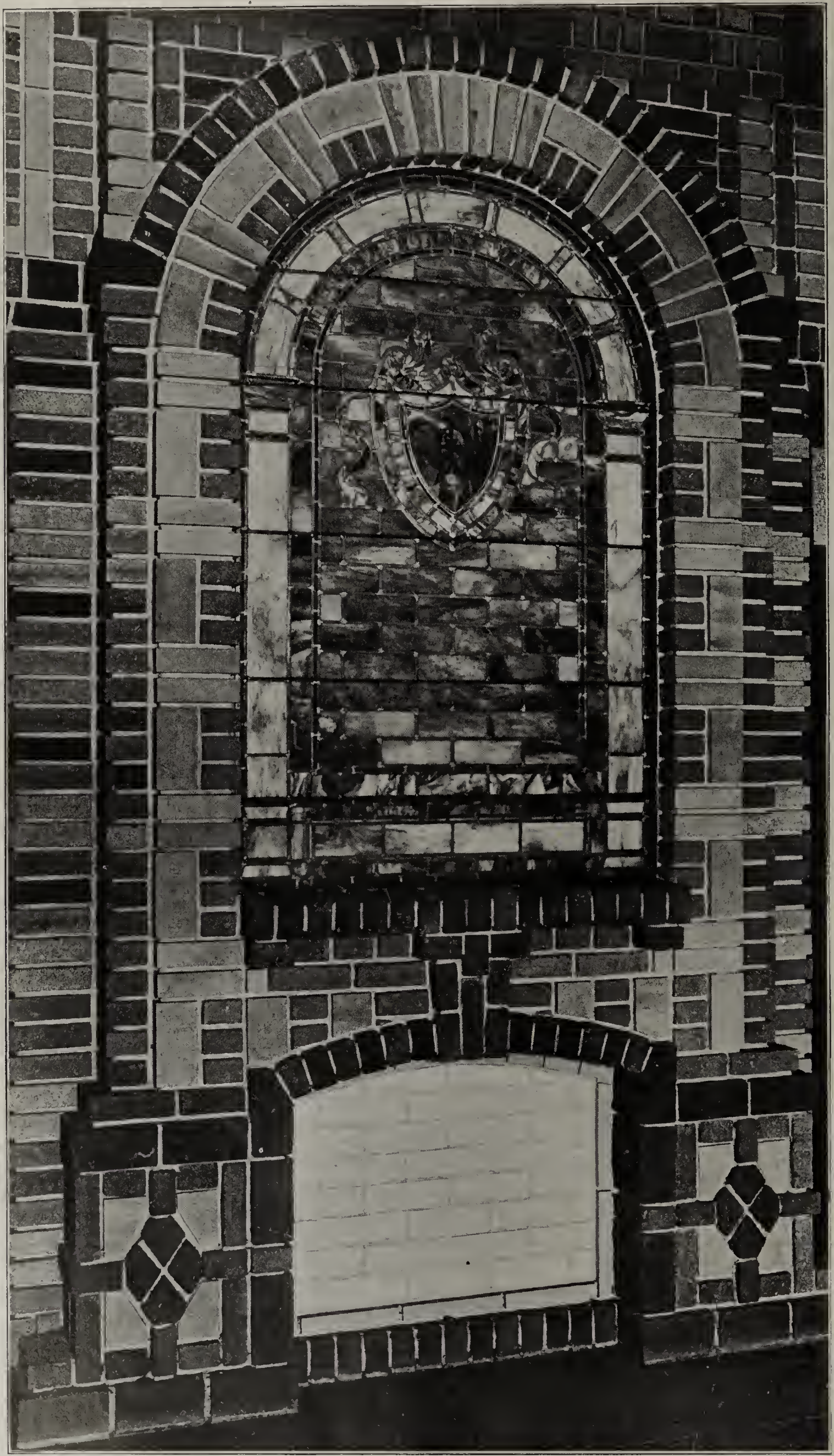


Example of Formal Interior Decoration Showing a Combination of Rough Surfaced, Glazed and Polychrome Enamel Brick and Raked Mortar Joints—Shown in the Exhibit Rooms of a Leading Eastern Front Brick Distributing Company

VOL. XXXVIII—NO. 9
BRICK
AND CLAY RECORD
MAY 1, 1911

# REVOLUTION IN BRICK SELLING METHODS

## Transition from Old Policies to Meet Prevailing Building Material Competition

### By Allen E. Beals

Insurgency has entered the realm of clay products. Progress has at last effected a change over methods almost as old as the industry itself. Because this innovation is most apparent in the selling department, it has been difficult for many manufacturers to determine exactly the cause of the increased business and resulting necessity for greater kiln capacity. In fact the change was so gradual, up to the last decade, that few manufacturers were impressed with the evolution until architects began to specify certain shades and mixtures in front brick and require uniform hardness and color even in common brick.

Today the designer of the artistic building delights to work in colors and he finds in brick the necessary small units with which to carry out the artistic conceptions of his mind's eye. He has created a demand for a new product, in other words, and it has been the province of the brick maker to stimulate this tendency of the architect and to encourage him to originate. When he does this, the brick maker has a problem to solve and the success which attends his efforts to unravel the puzzle in competition with others, is the measure of the present and future orders he may receive from this originator of building styles. Hence the brick exhibits found in many eastern and some western front brick selling agencies and the clay products show scheduled for Chicago in March, 1912.

A study of the process of this evolution is a tale of a commercial revolution, replete with fascinating situations. The plot is fixed in the east, because it is there that a certain far seeing front brick salesman first applied the observations he as well as others had been making for ages. Philosophers tell us that doing things a little differently is the basic element of all progress. If this be true, then the honor of being the pioneer in this change-about in brick selling methods is due Arthur J. Fletcher, now manager of the Sayre & Fisher Co., whose great works span two towns along the Raritan river in New Jersey.

Great bodies move slowly, and so ancient institutions are slow to adopt new measures. When Mr. Fletcher entered the brick selling ranks in New York City, in the later 70's, sample carrying was the vogue. It stood to reason that a salesman could not carry many brick at a time. Architects were busy men and could not wait until the salesman brought different brick at various visits. Furthermore, they already had in their mind just what kind of a brick they wanted, because the buildings were low then, and people still clung to the idea that a beautiful residential, commercial or public structure must needs be dark in tone to effect the massive and the dignified, or they went to the other extreme and, by the use of marble and granite builded so as to obtain the glaring white effect. There was no middle ground, no intermediary color tones. Everything was dark and oppressive or else made boisterous by glaring high lights.

Mr. Fletcher was observing; coming into the commercial life of a great city, young and full of enthusiasm, he was not long in discerning the cause of this unfavorable impression of architectural Manhattan. It was the universal use of brownstone and red Philadelphia brick in its buildings, both public and private. He looked about him; there in the old Bennett building, he realized the bigness of the future Greater New York.

About that time the county was planning the erection of its court house, still standing in City Hall park, and the famous Dakota flats between 72nd and 73rd streets and Central Park West were being figured on.

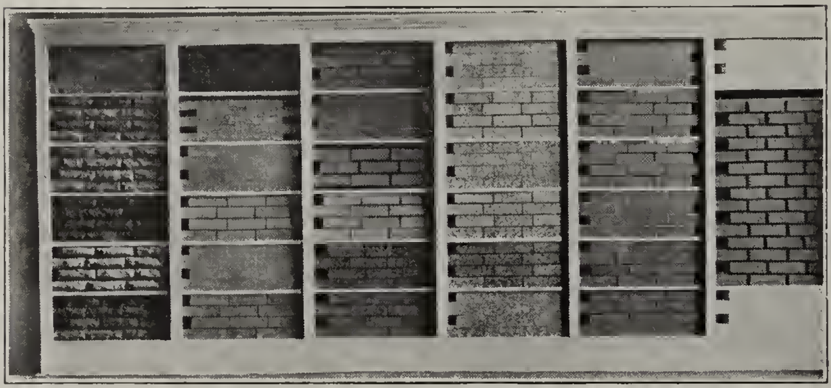
In the meantime the Sayre & Fisher plant at Sayreville had been experimenting with the clays on its property and had evolved a light brown brick. This was about 1880, but before this time, and as early as 1875, this company had been able to turn out some very creditable specimens of light colored brick and Mr. Fletcher finally prevailed upon the architects to permit the use of this brick in the interior courts. In the case of the Dakota flats, the lighter colored brick were specified but the architects were afraid to give the whole contract of approximately 250,000 brick to one company, fearing they would not be able to deliver them. The architects thought that was too large a contract to trust to any one company for delivery on a certain date, so the Perth Amboy Brick Co. supplied the outside brick and the Sayre & Fisher Co. supplied those used in the court, at prices ranging about $35 per M. of 8-in. brick. Today the same brick can be bought at from $26 to $29.

New York was now beginning to tire of the sombre brown stone front and red brick facade, and about 1882 McKim, Mead & White became the pioneers in bringing about this change. In the court house, yellow and blue combinations were worked out alternating with black. Note the disposition to retain the darker shades. It was a startling departure from the conventional. After the St. John Episcopal church at Elizabeth, N. J., was erected of cream buff brick, New York architects who visited the edifice regarded it as one of the most startling architectural innovations of the time and began to use this brick in New York operations about 1883. The grays came in 1895 and 1896.

From that time on the demand for grays increased quite rapidly to keep up with the growing use of Indiana limestone, as gray brick harmonized better with this stone than did any other material then or since obtainable. The architect saw his opportunity of obtaining harmony of color far more to his liking than the match between the red front brick and brownstone mentioned.

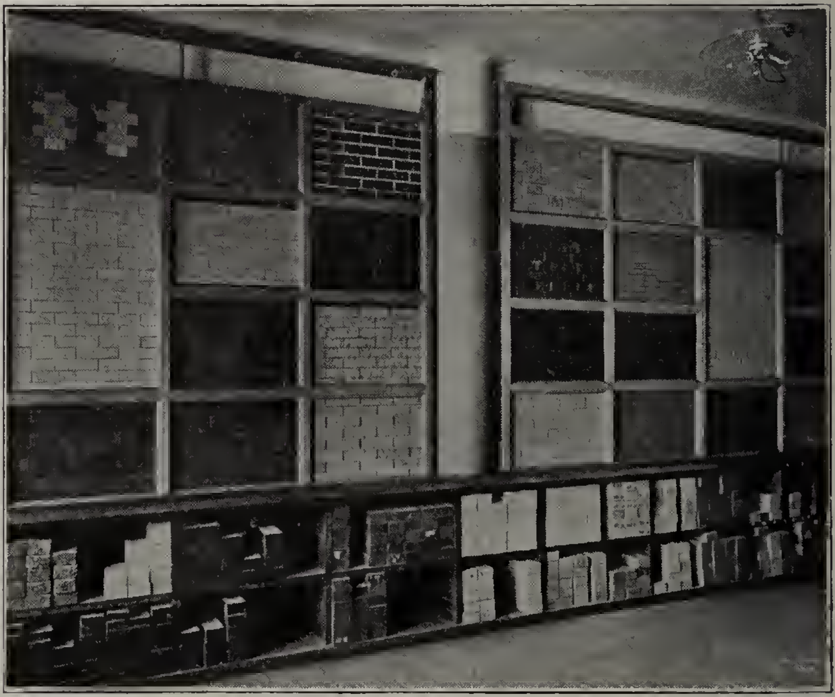
*(Illustrations loaned by Builders Material Record.)*

Views Showing Method of Displaying Brick in the Pittsburg Office of the D. J. Kennedy Co.



Pleasing Arrangement of a Front Brick Display in the Office of the Kreischer Brick Mfg. Co., New York City.

Brick Display of V. H. Kriegshaber & Sons, Atlanta, Ga.



Studies in Panels Showing Color Combinations and Working Designs in Walls, Exhibited by the Houghtalling & Wittpenn Co., New York.

Display of Brick in the Office of Campbell, Morrell & Co., Passaic, N. J.

The rough surface brick are of comparatively recent creation, but this brings us chronologically to the more startling departures in front brick production and the part that has been wrought by new methods in brick selling.

But before leaving this early period of change in brick styles, it may not be amiss to state that among the first buildings to use this new light brick was the New York state capital in Albany, which was partly destroyed by fire on March 29. In the rotunda and in the great dome, this brick was used when more conservative architects called it a mistake and the adoption of a mere fad which would not prove permanent. This brick was found to be still intact and in its place when other building materials were ruined by the flames.

Many of those critics lived to see the light colored brick, about which they held their hands aloft in horror, almost entirely supplant the old red brick and the dismal brown stone. The demand for the skyscraper, or, in fact, its compulsory introduction as a necessary adjunct to the Greater New York, brought with it the present tremendous demand for light gray and buff color-tones. Lofty buildings robbed lower ones of light and owners began to see that if they were to safeguard the values of the properties on which they had reared their giant "cloud wipers," as the French call them, they would have to conserve their neighbor's light. Incidentally they discovered that if they were to avoid the shutting out of their own light by an epidemic of skyscraper construction, they would have to use even lighter than buff and ash gray brick for facades, and in consequence, such buildings as the City Investing, the Fifth avenue, and many of the Fourth avenue lofts, have been constructed either on facades or courts of porcelain faced brick, the medium between the glaring white enamel and the light absorbing buff or gray.

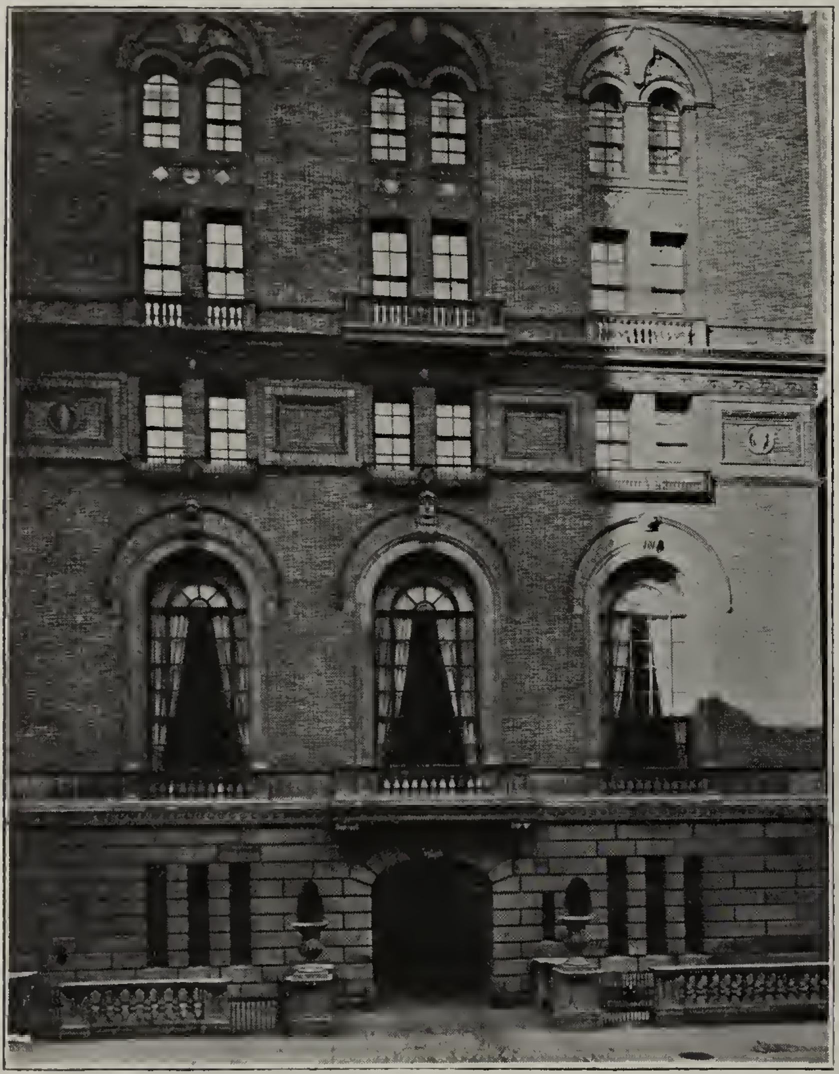
During all this time the germ of progress has been working in the brick selling departments. The sample carrying salesman gave way to the lithographed catalogue, which in turn gave way to the elaborately prepared booklet telling the architect how he could work in colors with different brick. Then came the office exhibit, which has been perfected to its present position of indispensability to the architect who seeks new ideas, not only in exterior but in interior decoration, and the next step will be the annual show, in every large municipal center in the country, not as a substitute or successor to the salesman, but as a necessary and vital adjunct to his efforts as well as to architect, owner and contractor. Selling methods today combine the use of the illustrated booklet, the telephone, the automobile and the chemist. Let us see therefore how some of these new methods are operated.

The province of the salesman today, is to have means at hand and systematically use them, for ascertaining what architect, owner or contractor is in the market for front or common brick, architectural terra cotta, or terra cotta fireproofing block. The manufacturer who can most convincingly demonstrate the advantage of his particular product usually gets the contract. Therefore nearly every manufacturer maintains a brick display in his office. Frequently this is a most elaborate one, more especially in offices selling front brick than in those selling common brick, but the display is there nevertheless. The architect may have an idea that he would like to use a combination of colors, or he may wish to combine architectural terra cotta with limestone and front brick. He cannot work these out in his own mind. He must see the finished brick en masse. He has no other proof that the company can actually turn out the shade he wants. The exhibit gives him the suggestion and the auto dashes him to the finished buildings where various examples of that combination are shown.

The case of the construction of Dr. Charles H. Parkhurst's Madison Square church, New York, is an example

Splendid Brick Display in the Office of the Hydraulic Press Brick Co., Chicago, Showing Pleasing Combinations Made Possible by the Use of Various Methods of Laying With Colored Mortar.

of this. When the late Stanford White sketched out the future Madison Square Presbyterian church he had in his mind's eye a peculiar shade of brick with a cross at the end of each brick and on some headers. Furthermore, he wanted a blistered brick, that is, a brick in which refractory clays which had already passed through the fire, were reground and added to a mixture of pebbles and quartz. This was added to the clays which produced the brick Mr. White selected. This produced what might be called the first rough, crazed surface brick, as well as an exceptionally hard one. Mr. White's idea of having crosses molded on certain headers was to obtain the disappearing diamond effect which has been conspicuous in the facades of this edifice. Approaching from the distance, one distinctly sees a series of diamond shaped outlines in the exterior walls of the building. These fade from view as the spectator advances until he sees the individual crosses and loses the scope of the diamond design. In addition he insisted upon perfect harmony of color. Mr. White received Mr. Woodruff Smith, of the Sayre & Fisher Co.'s sales force, with others, and listened to his claims of being able to turn out the brick desired.



A Splendid Example of the Brick Makers' Art, Showing the Possibility of Panel Work in the Home Club Bldg., in New York City.

All the salesmen were heard. Then he visited the exhibit of Sayre & Fisher Co. and found there a brick nearly answering his description. It was a brick that had scarcely ever been used. Some might have called it a superfluous type. Others might have termed it a discard. The salesman would scarcely have thought to mention this brick to Mr. White, yet when he visited the exhibit, he pointed it out with eagerness as practically what he wanted, except that in molding he would want the cross on it.

In certain combinations which the salesman was able to make for him there in the exhibit room, Mr. White decided upon certain changes, and after many experiments the Sayre & Fisher Co. turned out the very brick desired. It was accepted and the building today is called the most architecturally beautiful edifice of its kind in New York City, considering its setting.

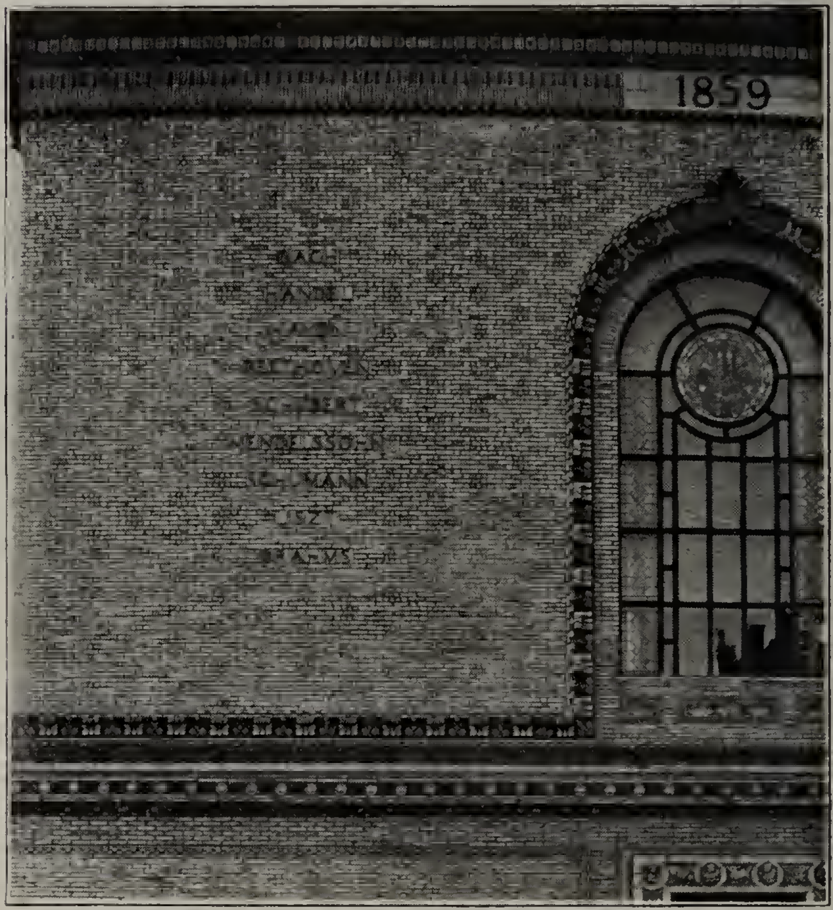
### The Value of the Brick Exposition.

Such, then, is the value of the front brick exhibit in connection with sales offices. We will now seek the reasons why a stated annual or even semi-annual exposition is not only logical, but necessary.

A reference to the accompanying illustrations will convey a clear conception of service the exhibit has given to the architect. They reveal evidences of appreciation of the enterprise displayed by the manufacturer, the architects having gained and given many valuable suggestions while visiting the displays. This is shown in the development of the joint, once thought to be a necessary evil in connection with brick work, but now a vital adjunct, by means of the raked, wide flush or narrow or wide convex ones in combination with the various kinds of bonds.

There is one thing still lacking in the perfection of present brick selling methods. That is the public exposition.

Printers' ink plays its part in brick selling, as in other lines of present-day business. The Building Brick Association of America, the leader in publicity for brick, is fighting the cement interests with their own ammunition —reading matter. It has this advantage, however, that the word "if" can be and is entirely left out of its propaganda. It has taken years to reach this point, and in the meantime many home, factory and commercial building owners have gained some experience by failing to take due notice of the "if" even though they have lost money in the process.



Lettering on Brick, Accomplished by the Sayre & Fisher Co., in the Facade of the Brooklyn (N. Y.) Academy of Music. Note the Combination of Shades of Brick, Which Incidentally Creates a Demand for Top-of-Kiln Brick.

Another discovery that J. Parker B. Fiske made when he conceived the idea of the Building Brick Association of America was that brick had an advertising advantage over cement and concrete in that it had the element of color on its side and the possibilities of working in color.

in an absolutely fireproof and imperishable material both inside and outside of the building, which help but appeal to every prospective builder. In consequence the country was first canvassed by advertising. Even this was revolutionary. Who had ever heard of advertising brick? It was an experiment, but the results of that experiment not only proved the contention of advertising experts that front and common brick could be profitably advertised, just as automobile tires, fireproof doors, cement and telephone service could be advertised with satisfactory results, but surprised even the promoters of the project. New business accrued that had never before been dreamed of; the membership grew in a few months from 60 manufacturers to 225. There are more members in this association today than there are cement factories in the entire country, the total number of which on January 1 was 103.

The process of evolution had its origin in the small brick display in the sales office. When the architect had been impressed with the possibility of working in small color units of brick, much in the same .manner as the artist works in the primary units of tints and tones, it became necessary to reach the ultimate consumer, and it was merely a question of time when such an organized campaign of publicity as that described, should come into existence.

When the Cement Products Exhibits Co., of Chicago, first tried the experiment of having a public show there in 1909, there was some doubt as to its success. There was none after the show closed. The following year there was not enough space for the companies who desired to exhibit. In New York last December the first cement show ever held in the East, not only met expenses but netted a profit. The great Madison Square Garden, with its capacity for 30,000 persons was thronged daily, and in one week the paid admissions were considerably over 120,000. Sousa's band cost $1,000 a day, but it was the drawing card to the prospective home builder or the casual visitor, a large percentage of whom represent ultimate builders who should be impressed. All space that was for sale was taken

One prominent brick making company, specializing in a rough surface brick, had an exhibit in a real estate and home show last year that cost them approximately $1,500, including some newspaper advertising. This enterprise proved the principal attraction, but for a long time afterward the company could not trace a single contract as the result of that exhibit. The down east office of this company protested against the expenditure of such a large sum for indirect advertising purposes until recently, when a brick show was projected for Boston. After a careful study of contracts taken by this company since that show and an analysis of motives of architects and others in placing business for apartments, offices and homes of the special brick handled by this company, it decided that such an expenditure was justified and made application for an appropriation for entering the exhibit in its own territory.

The revolution in selling methods of brick manufacturers in the East is now bearing fruit in other parts of the country. The show that will be given in Chicago, during the convention of the National Brick Manufacturers' Association, will complete the cycle marking the emancipation of the brick industry, both common and front, as well as those of architectural and fireproofing terra cotta, from the bondage of stagnant trade customs and traditions and give it its rightful heritage of the crowning position at the head of building materials, due it because of its three unimpeachable virtues; the most economical, the only permanent and truly artistic construction unit known.

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A Fine Example of Terra Cotta Made by the Washington Brick & Tile Co., Seattle, Wash., Showing Attractive Results to be Gained by the Liberal Use of Terra Cotta at the Clay Show.

# SYSTEM IN THE CLAY PLANT

## Read by M. E. Gregory, Corning, N. Y., before the National Convention at Louisville.

A short time ago a prominent man stood before a government commission and asserted his belief that one industry alone in this country could save one million dollars a day if it inaugurated a systematic method of management. Twenty years ago, even ten years ago, such a statement would have been impossible, because facts were lacking to substantiate it; made now, it summarizes the strides of management in economy and efficiency, and the results of system as applied to business management. These facts have been brought out more clearly in recent testimony before the Interstate Commerce Commission.

The accusation was made against the railways that they have failed to utilize the principles of scientific management, and therefore are not economical. The same charge can be brought with truth against the majority of our manufacturing plants, and can be substantiated in almost every locality.

To completely systematize a brick plant on practical lines is not a holiday job, as there is no line of business which requires more careful study and application than the brick business, and the different systems should be worked up after the most careful consideration, and a thorough knowledge of the business. The methods of getting cost, handling men, executing work, etc., are susceptible to systematic consideration.

For me to outline a system in this paper, which can be used on every brick plant, would be impossible, as each have their peculiarities which should be considered in keeping cost and systematic expenses. We have found it necessary to divide or classify the different items of expense somewhat as follows: Insurance and taxes, freight, shale or clay, supplies, kiln supplies, engine supplies, barn supplies, expense, office expense, pay roll, kiln repairs, machine repairs, building repairs, etc. These items, of course, can be changed to apply to the different lines of business. The total items of these several accounts may be transferred each month to a separate book, which at the end of the year or month would show what the cost of operating was in each of the departments heretofore outlined each month or year. The amount of each month, or the total for the year divided by the number of brick will show the average cost of production for each department for the month or year. I have tabulated a form, which will illustrate this scheme, although the figures are not taken from actual cost, but will illustrate the plan in mind, which I should be pleased to explain to any one.

Piece work can be handled much more easily in many plants and more advantageously than day work; however, I think one defect of this system is due to manufacturers themselves, who are apt, as soon as they see their men making a little more than day wages, to cut them down. This tends to discourage the men, who refuse to consider the plan further. Why should a manufacturer care if his men make more by piece work than by day work? If they do the work, and do it well, he should be willing to pay for it, and give them a chance to better their condition. We have men who have been working for three years at piece work, and they have averaged about thirty per cent more than they were able to make by day work. They get out their work promptly and satisfactorily. Why should they not make the additional amount? It costs us no more than before.

Foremen can be encouraged to economize in the different departments by various means; for instance, when you employ a new man, tell him that you will give him a certain percentage of what he will save in that department in cost of production and supplies, as compared with that of his predecessors. By following this system, one soon gets his business down to a firm basis.

A record of shut-downs through the day or week, cause, duration, etc., furnished by the engineer, is sometimes a valuable guide in locating the defective machinery, etc.

Keep the men, as far as practical, in certain lines of work, and do not change them around. The same rule would apply equally to machinery. Continual changes as to the kind of brick made materially decreases the output of the plant.

Extra parts should be kept on hand for all machinery which is most liable to wear out, as the loss occasioned by a shut down at a busy time would pay for many extras, which would have to be had in due time in any event.

Boilers should be cleaned at regular and frequent intervals.

The amount of coal consumed each day should be tabulated.

Careful accounts should be kept with each kiln, showing the amount of material in same, amount of fuel each burn, results of burn, percentage of good and poor brick, etc. If this is followed up, it will give the brickmaker much valuable information.

Our insane asylums are full of broken-down business men who never did but a few thousand dollars worth of business per year, while, on the other hand, we have men like Morgan, Hill and many others, who direct and manage vast enterprises apparently easily, as the result of system properly applied.

SEASON OF 1910.

| | Jan. | Feb. | March. | April. | May. | June. | July. | Aug. | Sept. | Oct. | Nov. | Dec. | Total. | Per Cent. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Taxes and Insurance........ | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 75 | $ 900 | .225 |
| Depreciation, Interest, etc.... | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 3,000 | .75 |
| Freight ........................ | 300 | 400 | 400 | 500 | 500 | 600 | 1,600 | 1,600 | 1,000 | 1,200 | 1,200 | 1,200 | 10,500 | 2.625 |
| Material ........................ | ... | ... | 300 | 400 | 500 | 500 | 700 | 700 | 500 | 400 | 400 | 400 | 4,800 | 1.20 |
| Supplies ........................ | 50 | 50 | 50 | 100 | 100 | 100 | 125 | 125 | 125 | 125 | 100 | 50 | 1,100 | .275 |
| Kiln Coal ........................ | 500 | 500 | 500 | 600 | 600 | 600 | 650 | 650 | 600 | 600 | 600 | 400 | 6,800 | 1.70 |
| Engine Coal ..................... | 100 | 100 | 200 | 200 | 300 | 300 | 400 | 400 | 300 | 300 | 200 | 200 | 3,000 | .75 |
| Maintenance of Teams....... | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 1,200 | .30 |
| Expenses, Miscellaneous .... | 100 | 100 | 100 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 100 | 1,400 | .35 |
| Office ........................ | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 1,500 | 3.75 |
| Machinery Repairs .......... | 100 | 100 | 150 | 150 | 200 | 250 | 250 | 300 | 300 | 300 | 250 | 100 | 2,400 | .6125 |
| Kiln Repairs .................. | ... | ... | 50 | 50 | 50 | 50 | 75 | 75 | 50 | 50 | 50 | 50 | 550 | .1375 |
| Pay Roll ........................ | 100 | 100 | 300 | 800 | 1,200 | 1,500 | 1,800 | 1,800 | 1,800 | 1,800 | 1,500 | 1,200 | 13,900 | 3.475 |
| | $1,800 | $1,900 | $2,600 | $3,475 | $4,125 | $4,575 | $6,275 | $6,325 | $5,350 | $5,450 | $4,975 | $4,250 | $51,100 | 12.775 |

# MODERN CLAYWORKING

**Part XXIX.**

By A. B. Searle.

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# OILS AND LUBRICANTS

## Practical Suggestions on the Use and Care of Various Lubricants.

For internal lubrication of steam engines it is necessary to use special oils which commonly appear in the market as cylinder oils. These should be composed of pure mineral oils which are quite free from animal or vegetable oils, as the latter would cause corrosion when they find their way into contact with metal at high temperatures. Mineral oils are not decomposed by steam and can do no harm if they get into the feed-water of a boiler; in fact, they tend to do good by loosening the scale in the latter.

The heavier mineral oils should be used, and even then it is occasionally necessary to blend them with a small portion of rape or other fixed oil in order to increase their oiliness—a property which is often deficient in pure mineral lubricants—but this cannot be done when the condensed steam is returned to the boilers.

When oil is fed into a cylinder it should not only be unaffected by the temperature, but should distribute itself amongst the steam in such a manner as to effectively lubricate the surfaces with which it comes in contact. If, on the other hand, the oil is so sluggish as not to associate with the steam, it is either local in its action, or it is blown through the engine practically unused. Cylinder oil should, therefore, possess the greatest fluidity consistent with the conditions and requirements prevailing, and yet have sufficient viscosity to perform its lubricating functions on the part to which it attaches itself, and which, in the case of cylinders, are always more or less wet. In order to increase the lubricity of pure mineral oil, and to assist it to adhere to the cylinder surface, some manufacturers add a very small percentage of saponifying oils; but for very high temperatures, and especially for superheated steam, it is very questionable whether a high grade oil is not the safer to adopt.

Other essentials for a good cylinder oil are that it shall not carbonize or gum, and that it shall be entirely free from acid. The demands for the best class of work are most exacting, and can only be met by a mineral oil of the very highest grade.

A small proportion of graphite in a cylinder oil greatly assists lubrication, but requires a special feeding appliance, as if the graphite settles out of the oil it causes trouble.

Sometimes a mixture of glycerine, graphite and petroleum is used, the last-named being added to the graphite in quantity to form a mixture of the same density as glycerine and thus prevents the graphite from settling out.

Steam-cylinder lubrication can never be as perfect as that of shafting and journals, as the pistons and valves do not so readily tend to automatically place themselves in position to make the most use of the lubricant. In addition to this, a considerable loss of oil occurs through volatilization and some from decomposition. All these tend to imperfect lubrication and a condensation of steam in a delivery pipe will often force so much water into a cylinder that lubrication is impossible, it is important to see that only dry steam is used. This is one great argument in favor of slight superheating, but where this is not done much trouble may be averted by a short vertical length of pipe between the boiler and the engine (placed as near to the latter as possible) providing this be properly drained; otherwise it will do more harm than good.

For pressing brick, etc., the most suitable lubricant is paraffin with a small proportion of engine—or colza—oil, a teaspoonful to a pint being a favorite proportion. Other oils are frequently used on account of "greater cheapness," but when the amounts of these actually employed are compared it is probable that a lower price per gallon is more than counterbalanced by the lesser lubricating power of the material. Black oil or cat oil is a mixture of tar oils (mineral oils) which has been indifferently rectified, but which is cheap and generally sufficiently satisfactory.

Emulsified oils, containing a considerable proportion of soap, are often used in brick and tile pressing because they can be mixed with large quantities of water and so "a little oil goes a long way;" the oil particles being extremely small and the lubricating properties of water very great under suitable conditions. On this account steam is largely used as a lubricant for the mouthpieces of presses of the auger or continuous type.

As already suggested, however, the selection of lubricants is a matter requiring considerable chemical and engineering skill, and is not to be lightly undertaken without a complete series of tests and a full knowledge of the working of the machinery. On this account, it is wise to leave the choice of lubricants to the most reputable oil merchant one can find, and to trust him with the matter as fully as possible. If he is the right man he will produce far better results than if the oil be bought from a different firm each time the supply runs short. At the same time, there is an undoubted tendency on the part of some merchants to supply "a special oil" at exhorbitant prices when they know that the customer is not likely to detect the fact that it is the same as one of their stock samples. This is a difficulty which cannot be overcome except by the experimental testing and analysis of the lubricants used, and this is far too expensive for all but the larger works. Fortunately for the clayworker, firms still exist in sufficient numbers which deal with sufficient fairness to give him ample choice in the matter of both liquid and solid lubricants, and he is a wise man who does not too easily depart from what is a satisfactory lubricant simply because of the attractively worded claims of a rival manufacturer of oils and greases.

The mistake made by most machinery users is that of price. They endeavor to cut down prices to such an extent that it becomes almost impossible to supply satisfactory lubricants at a legitimate profit, with the result that the better firms retire from the competition, and the user is left to the mercy of inferior men and adulterated materials. Thus, although in the selection of lubricants the price is of great importance, it is not economical to use cheap but unsuitable materials, as will be readily seen when the total expenses of working are compared. This can only be done by drawing up a series of balance sheets each showing the total expenses chargeable to each of the following items: Cost of power developed; cost of proportion of power lost in friction; expenses resulting from wear and tear, stoppages, etc.; cost of lubricants.

That some of these figures are difficult to obtain is no reason for their being neglected, and a single serious attempt to make a fair comparison of two or more lubricants will soon convince the average clayworker that the selection of a lubricant is a matter requiring far more than average skill and patience.

In addition to this, it must be remembered that faulty working is not always the fault of the lubricants used or misused, for with the best of lubricants careless or improper application so detracts from their value as to make them as unsatisfactory as an inferior lubricant applied in a more suitable manner. Hence, common sense must be exercised if the best results in lubrication are to be obtained.

### Clarification and Filtration of Lubricating Oils.

With the introduction of lubricators holding relatively large proportions of oil and the increased use of mineral oils in engine cylinders, the provision of some means of cleaning used oil has become necessary, as once it has entered into its place in the moving machinery all oil has a tendency to become contaminated with grit and other fine particles which would rapidly do damage if not removed.

These impurities are so extremely small that it is difficult to remove them unless a specially designed oil-filter is used. There are several different types of these on the market, but for effective service they should possess:

> A capacious settling chamber, capable of being warmed so as to increase the fluidity of the oil, in which dirt and water can settle and easily be removed.
>
> Double filtering chambers, through which the oil is passed by upward and downward filtration. Best white cotton yarn or waste is the most suitable filtering medium and, if compressed by an adjustable screw, it is far superior to filtering cloths.
>
> An arrangement for distributing the oil evenly over the surface of the filtering pads, as otherwise the life of the latter is much shortened and filtration is rendered unnecessarily slow.

A preliminary strainer of wire-gauze is useful in keeping coarser matter out of the filter, but it should be easily taken out for cleaning.

No filter can completely separate all the water from the oil, but by allowing sufficient time for settlement and by filtering the oil while warm (the filter being usually heated by a steam coil contained in the settling chamber) a sufficient separation may be effected.

If a filter is used to remove dirt and oil from the condensed steam, it should be kept in good working condition, or it may be worse than useless; it also should have a by-pass (with a key kept in the manager's possession) for use when the filter is out of order or undergoing cleaning. If the by-pass is under the control of the boiler attendant he may surreptitiously pass the water through it, and not through the filter, in order to avoid the trouble of cleaning the latter.

It is always risky to use the condensed steam again from which the oil has been removed, as it is impossible to take out every vestige of oil, and even minute quantities will, in time, cause trouble in the boilers. If there is any shortage of water, that obtained by condensing steam should be used for damping the clay, or for other purposes where it cannot enter the boiler.

The filtering material should not be too long in use and after having once been taken out of the filter it should be thrown away. To attempt to use it again is to run risks which far outweigh, in possibility of damage to the machinery, the slight cost of the filtering medium.

Cylinder oil should be kept apart from the rest and should be clarified in a separate filter. By this means it may be repeatedly used, with the occasional addition of a little new oil, and a considerable economy realized.

In no case should different oils be placed in the same filter, as this only leads to confusion and difficulty.

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## YOKE BRICK PLANT.

In the illustration is shown the plant of the Yoke Brick Company which was sold sometime ago at a bankrupt sale.

The plant was incorporated in 1905 for $245,000 and has had an unfortunate existence so far, passing through several owners hands and finally being sold for less than $25,000.

The plant was well equipped by the American Clay Machinery Co. and has a capacity of 100,000 blocks per day.

The power house is furnished with an 800-h.p. Allis-Chalmers engine, three 500-h.p. Altman boilers, and electric lighting plant, an 18-tunnel waste heat dryer, eleven round down draft kilns with a capacity of 50,000 block each and six up draft kilns each having a capacity of 180,000 block.

With such equipment the new company without doubt will, it is hoped, make a success of what has heretofore been a failure.

# LIVERMORE FIRE BRICK CO.

## California Plant where Fuel Oil is Used Successfully for Burning.

The plant of the Livermore Fire Brick Co., which is located in the town of Livermore, Cal., and whose offices are located in the First National Bank Bldg., Oakland, Cal., has recently been invigorated with new capital and energy and with the plant reconstructed and equipped with every possible addition to add to its efficiency, is one of the important enterprises of the state. The tract of land on which the plant stands comprises about eleven acres on both sides of the right of way of the Southern Pacific and Western Pacific Railways.

The buildings of the plant are constructed of wood. The power plant and brick making machinery and the drier are located in the main building, which is 100 x 160 ft. in size, with a wing 28 x 30 ft. in which the boilers are located. Adjoining and connecting with the main building is the storage shed, with elevated track for receiving the raw clay. This building is 80 by 140 ft. with solid concrete floor. Located conveniently to the main building is a drier shed 100 by 160 ft., also separate buildings for blacksmith shop, oil storage and an office and laboratory building.

The company has control of its own clay deposits consisting of 220 acres of land in Calaveras county, nearly all of which is underlaid with refractory fire clay of three varieties. There are well defined deposits of non-plastic flint clay, semi-plastic clay and plastic deposit also. The latter clay is especially suited to the manufacture of terra cotta and face brick. The depth of these deposits has not as yet been ascertained but borings 35 ft. deep show a continuation of the solid body of the clay in blanket form.

The company has constructed test kilns, one of size sufficient to hold 1,500 standard brick and another 400 standard brick, and from tests of the company's brick made in these kilns there was no evidence of fusion or fluxing when burned at cone 34. Nothing beyond this heat has ever been attempted as there is very little shrinkage in the clay and brick after having once been burned to cone 12 show no subsequent evidence of shrinkage after being reburned to cone 30.

The company is engaged at the present time in constructing a spur track so as to load its clay at the mine at a minimum cost. It will be possible to load gondola cars, which are used in California by clay haulers about eight months in the year, by gravity.

Storage bins for weathering the clay, properly sorting it prior to shipment, will also be constructed during the present summer by the company with sufficient capacity for several months' run.

A Standard 9-ft. dry pan made by the American Clay Machinery Co. is used in pulverizing the clay, which is then taken directly to the pug mill where it is tempered and a small proportion of grog is added. A piano wire screen made by the American Clay Machinery Co. is used.

A heavy duty American Clay Machinery auger is used in manufacturing the brick, which are repressed in a double Eagle block repress No. 85, the largest machine of its kind manufactured, which is capable of pressing material 15 by 17 by 7¼ in.

The clay when pulverized in the dry pan falls by gravity into an elevator boot, whence it is taken up into bins after passing over the piano wire screen. These bins feed the pug mill automatically with the desired quantity of clay according to the mix used in burning and one man constantly attends the pug mill operations.

General View of the Plant of the Livermore (Cal.) Fire Brick Co.

The drier cars, of which the company has 200, are made of all steel, ball bearing, each car holding 400 repressed brick, set eight brick high. The drier is constructed with 17,000 ft. of 1-inch pipe laid between the car tracks, 16 pipes, 8 above, 8 below, to each track connected to manifolds at either end. Live steam is used in the drier at night and exhaust steam during the day. The capacity of the drier is about 76,000 brick.

No transfer cars are used except the ones receiving the green brick for distribution to the drier and one for receiving the dry brick to be transferred to the kiln. The company has at the present time thirty round down-draft kilns but have plans made for the erection of three others, to be constructed at once, which will greatly increase the capacity. The machine now have a capacity of 30,000 per day.

There are no furnaces used at the kilns, fuel oil being used for water smoking and burning. About three and one-half barrels of oil are used to burn the brick to cone 12. The company has Worthington meters attached to the oil pipes, so that accurate records are kept of the amount of oil consumed, which has been found to average about 3¼ bls. for burning 1,000 brick. The kilns are of the open floor type in which the brick are set 28 high.

The power plant is equipped with one 300-h. p. Erie corliss engine, two 150-h. p. Erie water tube boilers of the Heine type.

The production of the plant is limited to fire brick and kindred refractory products, including shapes for oil, steel and glass furnaces, rotary cement kilns, cupola linings, boiler settings and locomotive blocks. The plant is operated continuously throughout the year, about thirty employees being kept busy.

The company took over the property of the old Rose Fire Brick Co., formerly located in East Oakland, and installed a complete new line of machinery, except in the power plant which was practically new and in first-class condition. The company uses no special home-made labor saving devices but contemplates the installation of a gravity carrier system for loading brick for shipment.

Corner of the Machine Room at the Plant of the Livermore Fire Brick Co.

The officers of the corporation are as follows: E. L. Dow, a capitalist of Oakland, president; L. G. Burpee, manager and vice-president of the First National Bank of Oakland, vice-president; C. K. Holloway, secretary.

## MOBILE NOT MOURNING.

The bark Good News, bound from Philadelphia for Mobile with cement, dropped from beneath the feet of her crew so rapidly, that they hardly had time to take to the boats before she plunged to the bottom of the Atlantic. It is believed that the cement absorbed so much water from a leak that it bore the ship down with the added weight.—Milwaukee Evening Wisconsin.

It is needless to say, Mobile brick men will spend little time in grieving over the bark Good News.

## CLAY SCRAPINGS.

The Standard Clay & Glass Product Co., has been incorporated with a capital stock of $25,000 for the establishment of a plant at Mogadore, Ohio. The incorporators are: Charles Bertch, Edward W. Romweber, Thomas C. Casterton, J. H. Romweber and J. L. Swartz.

## THE USUAL RESULT.

A fire in a frame building at Packingtown near Oklahoma City so heated an adjoining concrete block building that before the fire department reached the scene, while the frame building was only partially burned, the concrete blocks had expanded so that the walls were cracking and it was not safe to enter the building. The fire was put under control, but the fireproof concrete hollow block house cracked and crumbled so from the heat near it and the water that it was found necessary to throw on it, that it is now nothing but a pile of debris. The frame building which burned and the concrete building which caved in will be replaced by brick structures.

## ANNOUNCEMENT.

Owing to the re-numbering of Chicago's streets, after April 1 the Chicago Brick Company's street number will be 20 W. Jackson Blvd., where they will be glad to see any visiting brick makers.

## FIFTH BIRTHDAY.

With the June issue of "The Mantel, Tile and Grate Monthly," published at Utica, N. Y., that publication completes its fifth year of existence. It has been unusually successful and is counted as one of the best trade mediums in the country, being the only publication in the world devoted to the interests of the mantel, tile, grate and kindred industries, and is the official organ of practically all of the associations connected with these industries, and reaches also architects, contractors and builders. Its editorial offices are located at Utica, N. Y.

## MANY IMPROVEMENTS ADDED.

The extensive improvements planned by the Brazil (Ind.) Face Brick Co. which took over the properties of the defunct Sheridan Brick Works, have been started. A large force of men are at work building ten large kilns and ten stacks. Other improvements will be made on the plant, new machinery will be installed and the property generally improved. The brick that will be turned out by the company will be entirely different in appearance and composition from the ones formerly made.

# ADVERTISING COMMON BRICK

## A Paper Read by G. A. Welch before the Northwestern Clay Association, Held in Minneapolis.

When I prepared this paper my general supposition was that it was hardly to be limited to newspapers, so if some things said are a little wide of the text, it need not be surprising. Very few preachers stick faithfully to their text anyway, and it is not to be expected that a newspaper man will do any better. And being a newspaper man, I anticipate that many of you will assume that the only answer I have for you, is that it does pay, because it is presumed that newspaper men must insist that advertising always pays, so let me upset any such notion by saying that very often advertising does not pay, and probably could not be made to pay if pursued along the lines on which some start.

I am taking the word advertising along its general and more restricted meaning. Webster's definition of the word advertising is: "To give notice, advice or intelligence to; or inform or apprise." So that practically anything done which extends any information of any nature regarding articles for sale, comes within the description of advertising.

Advertising as the science of the introduction of salesmanship naturally falls into two classes, one of which is sadly overworked and the other is miserably underdone. The first class is that of striving to get business which is destined to go to someone in the same line, and the only question to be decided is who will get the business,—yourself or your competitor.

The bulk of competition seems to be made up of this class of business, and the result is that competitors waste a great deal of valuable energy in striving against one another, and hating one another, and wasting mental force which, if it had been directed into the second classification, would have benefited the party of the first part and would have had a reflex benefit to his competitor as well, and this all in spite of himself and any feeling that he might have that he would not wish a competitor to benefit by any result of his work, for you cannot proceed along the lines of developing what might be termed new business and possible business, without starting others to seeking the same thing that your customers are getting, and while you as the first to take the plan up, will naturally get the most of it, there will be some business go to others as well, and here is where advertising in the newspapers may pay or it may not pay. Many have found that it does pay. Some believe that they have found that it does not. I am not always certain that those who have found that it does not pay, have given it a full and fair trial, and that perhaps a portion of the fault may lie with the advertiser, as well as much of it with the newspaper.

I want to drop one hint on advertising, and that is you cannot regard it as in the same class with some of these clocks which will run 400 days on a single winding. Some advertising seems to run that way, but the real efficient and profitable advertising, as a rule, is that which is watched and scrutinized and changed and studied, and kept track of, until it is found whether it pays, and if so, in what form it works the best. Then follow that line, stay by it and develop it and make it bring in more business. It is business that counts.

Never mind about the development of artistic advertising, if you cannot see that it counts in a business way. In general, the artistic advertisement should be the one which is attractive, but you must find which is the best for your requirements.

In the city dailies, it is not the artistic advertisement that counts. You may notice that the department stores, which have brought the science of advertisement and salesmanship to a fine point, will put in advertisements which will never take a prize in a beauty or art show. Some of them look like a section of a directory or a page from a catalog. But they bring business, and that is what counts. They occasionally indulge in something artistic with fanciful illustrations, as a variation, but when they have a lot of goods that they really want to move out quickly, there is not a superfluous line or picture in the advertisement. Every line and every word has its work, and they expect it to do business.

I believe that you can do the same, only you must learn what is needed in your community and with your possible customers, in order to get their attention. I do not believe that there is a community in existence nor a brick man in business anywhere, where there are not many who are able to use and need something that can be supplied from the wares of the brick manufacturer, if the latter will only make the suggestion.

If you can devise suggestions which can be met by the use of brick, in different ways, those suggestions of yours will be read in some form or other. It calls for salesmanship, for generalship, for thought and study, and for more information than you may possess at the start. Very well, you may develop all these. It means business and money to you if you do, and it means a lack of the same if you do not. Be alert to meet local occurrences with suggestions which call for brick.

If a fire is stopped by coming up to a brick building, there is a suggestion which is worth mentioning. And where fires get into brick structures, it will give you an opening for a statement some time after,—not too soon after the occurrence, to point out what should be done to make the effectiveness of brick for fire protection most complete. Some of this sort of thing must be classed as missionary work which will be effective only in a general way.

Throughout the winter, when business allows time for a study of various things, work up little plans and suggestions, of minor changes in buildings that can be made at little cost, and the change of material benefit to the farmer. A severe winter may result in considerable damage to stored produce through freezing. You should have some cheap plans for cellars with brick walls, or brick buildings complete, which you can guarantee as being safe against frost, if constructed as directed.

Have clear and explicit plans of what must be done. Figure out as closely as possible what can be accomplished in the way of walls, supports, columns and piers, for houses or barns or other buildings. Many a stock barn could be fitted up with additional stallroom by extending the basement, and laying up a brick wall against the earth embankment, where little or no skill would be called for, aside from preserving a straight line. Certainly much, if not all, that can be done by the labor available on the farm in cement and concrete, can be done with brick. In laying up a wall, the same method of board forms could be suggested, for preserving a straight line, and it would not take any more experimenting to get things going satisfactorily by using brick than concrete. With the suggestions which could be given as to the method to be followed, there would be a great many who would be willing to attempt simple walls, posts and supports, and others who would attempt more complex propositions. There are hundreds of applications of brick in combination with other materials, generally cement for mortar, and possibly some cheap reinforcement such as galvanized or barbed or hay-bale wire. Reinforcement might not be necessary, but there is such a confidence in that feature that it would help to arouse interest. Incidentally it might serve to help things where the work was not well laid up.

The educational propaganda is something which is not appreciated. Brick is probably the oldest form of building material that the world has known, and many assume that everyone knows what can be done with brick because of that fact. But we learn in scripture that it did not take long in the early dawn of history in brickmaking, for a new king which knew not Joseph, to forget all about what the latter had done and to start utilizing his people in making brick. And doubtless the next generation was just as quick to forget the points about brick, or anything else, as it is now in this day. The new generation has to learn for itself all the things which the preceding generation has known and perchance forgotten. So it is not safe to assume that half the uses of brick are known, simply because brick has been used from time immemorial.

When a line of ideas of this nature has been worked out, the next question is how to get the suggestions before the people who will use them. The natural thought is that the papers will do it. They are usually read, and their advertising space is valuable, as a rule, in so far as one proceeds to make it so.

Whether an individual paper will be a profitable one for advertising brick to the consumers, is something which each one must decide for himself.

I have seen some advertising which I would be willing to wager did not pay. It consisted of a statement: "The Blank Brick Works, manufacturers of brick and tile, Smithville." That was all. Nothing about what it was good for,—wherein it had talking points, none of the things which the manufacturer would bring up to a customer who idly asked something about brick at the office. Yet in talking to a number of possible customers, there was nothing told that the reader did not know already, if he knew anything of such an institution being in existence. Advertising that is carelessly done, is frequently wasted, and seldom pays, although there may be infrequent returns even from that. But if you decide that advertising in the local paper will not pay, after giving it a careful trial, then take up circulars, and use them.

In offering this suggestion, I am getting beyond my subject, but I want to make the suggestion because it is a part of the general idea. Take up such suggestions as you can meet. If you have a hard burned durable brick which will serve, suggest it for barn floors, and floors for stalls, in the country. Communicate with steel and iron concerns and find the numerous uses which brick can be put to in connection with iron beams and other pieces. You may be surprised to learn how much more use can be made with brick in connection with iron than used to be thought possible,—that is in small buildings. Much of this work is such that the farmer could do it himself,—if not skilfully, at least quite as well as he could do with other materials.

In these days of agitation for greater sanitation in dairy barns, the suggestion of a dairy floor laid of brick, with gutters and drains, so that the whole could be flushed clean, ought to be a winner. Stalls laid out with iron posts from which chains are suspended to separate the cattle, would make the room much more attractive looking, easier to handle in every way, and if the scheme proved attractive, it would do all the advertising of your brick which was necessary.

In closing, I am free to admit that the indications are that most brick manufacturers through the Northwest do not seem to think that advertising will pay them. When this subject was assigned to me, I gave an order to a clipping bureau to cut for me all advertisements of brick yards, expecting to get a number of them. It was winter, and farmers would have more time to consider suggestions for new building, houses, barns and granaries. They would see what was needed in the way of substantial buildings of the character that brick could fill so well. And then I waited for the clippings. I received five: one from a concrete block concern, and mentioned cement brick, one from a foundry company which made a sand brick machine, another was from a cement concern which advertised drain tile, brick and blocks, the fourth was a commercial club which called attention to the fact that its city had brick yards as well as other industries, and just one was from a clay establishment.

Just one advertisement from a clay works establishment, urging his wares at a time when there would be the most time to consider them and when they could be hauled by the farmer purchasing them, with the least interference to his other occupation. You may think that this suggests that it does not pay. Yet I am told by one of your members,—a man who has made a conspicuous success in the business, that if he were thirty years younger and had to work as hard as he was obliged when he started, that he could see a better prospect and a brighter chance for success now than there was when he began. Another member told of his advertising at county fairs and by displays, indicating that he felt the subject was hardly begun to be developed.

The real question is to suggest to the people the ways they need to use brick, and get them to thinking about it. Too much time has been wasted assuming that they know what can be done with brick, and waiting for them to make up their minds that they would use it. Get them thinking of how they might use brick, and whether you use newspapers, or circulars, or displays at county fairs or whatnot, you will be advertising your wares, and then if it does not pay,—it may be that some of the fault lies with your wares.

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## THIRTY-TWO YEARS OF PROSPERITY.

1911 marks the thirty-second year of progress in the production of brick making machinery by James W. Hensley, Indianapolis, Ind. Mr. Hensley anticipates the needs of the up-to-date brick maker who must keep ahead of the trade or fall behind and is constantly improving on old lines, his motto being "there must be progression or there will be retrogression." He recently produced a new and splendid line of brick and tile machinery, including everything necessary for producing the finest quality of goods. This, as well as other lines of brick making machinery are amply and fully described in a catalog which will be gladly supplied to any one upon request.

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## ATTRACTIVE FOLDER.

The Sawyer Belting Co. are issuing an attractive folder, describing their various designs in belting and other products. These folders may be had by addressing the company at its offices, Cleveland, O.

## THRIVING SOUTHERN PLANT.

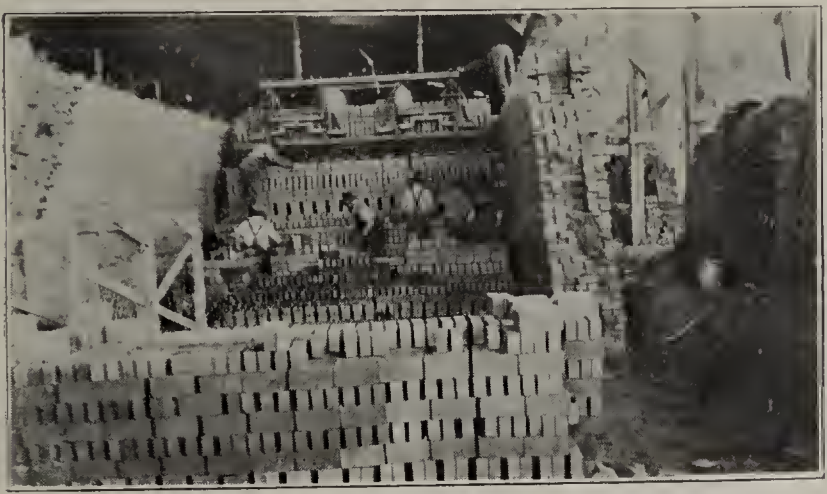
Among the many progressive business firms in Boynton, Okla., is that of the Francis Vitric Brick Co., which was organized with a capital stock of $200,000.

The plant was begun in March, 1910, and is now ready to begin operation. Over $85,000 worth of power and brick machinery has been installed, making it one of the largest and most modern brick plants in the Southwest.

Extensive Buildings of the Francis Vitric Brick Co., Boynton, Okla.

The entire plant is operated by electricity, each machine, having a separate motor so that it can be immediately shut down for repairs or other needs without affecting the other parts of the plant. The power is furnished by an 875 hp. Buckeye engine in connection with a 250-volt Northern generator, furnished by the General Electric Co., which also furnishes light for the entire plant.

The shale used in the making of the paving brick is mined within 100 yards of the plant and transported to the plant by the Woodford Central Control System of electric cars, each having a capacity of three yards. The shale is taken from the pit by a 95-ton steam shovel, dumped into the cars and on arrival at the plant is ground by a huge auger machine, from there carried to a large dry pan provided with a three-way cutoff so arranged that the shale can be thrown into two large store rooms and to the machine at the same time. Thus providing a supply of clay to be used in case of an accident in the pit or grinder.



Showing the Penfield Brick Setter in Operation

The brick are taken from the machine and stacked in kiln form, 1,150 in a stack, and are then handled by the Penfield brick machine and transported to the kiln where there are unloaded ready for burning. Gas from the company's own field, five miles southeast of Boynton, is used in burning the brick.

The company is fortunate in having already booked orders for a large quantity of paving brick.

Mr. Charles Francis of Muskogee is president of the company and A. W. Shulthis of Independence, Kansas, is secretary and treasurer.

## A BENTON HARBOR INDUSTRY.

At the annual meeting of the Benton Harbor (Mich.) Brick & Tile Co. the following directors were elected for the ensuing year: J. M. Mamer and N. L. Mamer, of Campus, Ill.; J. G. Mamer, P. J. Mamer and L. W. Pofahl, of Benton Harbor; J. M. Mamer, vice-president, and J. G. Mamer, vice-president, and J. G. Warner, secretary and treasurer. J. G. Mamer, who has been secretary and treasurer and general manager for the past year, will continue in this position, while his brother, P. J. Mamer, will be assistant manager and salesman.

It is the policy of the new board of directors to rebuild the whole plant, enabling them to turn out a far superior line of brick and tile to that formerly made. With this end in view they have employed as superintendent O. A. Miltz, of Norwalk, O., a practical clay worker of twenty-one years' experience. Mr. Miltz has rebuilt several plants and has also installed a number of new ones.

At the Shale Pit (Francis Vitric Brick Co.)

The old factory building which has done service for many years past, is being demolished, and a new and modern structure is to be built in its place. Instead of gathering the clay with scrapers, as has been done in the past, the directors have voted to install a steam shovel which will insure an even and thorough mixture of clay at all times. A new boiler will replace the old ones. The plant is to be put in an operating condition, making the daily output 30,000 brick, thus giving the consumers of the twin cities and of Berrien county reasonable assurance of prompt deliveries at all times of the year, especially in case of rush jobs.

The company has joined the Building Brick Association of America and they will be glad to furnish anyone interested in brick, literature of the association giving estimates on brick houses and buildings. They have also been appointed agents for the Thomas Moulding Co., of Chicago, and therefore will be in a position to furnish face brick, including all kinds of enameled brick.

The new organization bids fair to place the plant in a very creditable condition, furnishing such high grade material, prompt deliveries and prices that will make it the duty of consumers of Berrien county to use their output, thus contributing their share in helping to keep up a home industry.

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

BRICK AND CLAY RECORD

Vol. XXXVIII. MAY 1, 1911 No. 9

## EDITORIAL COMMENT.

Attending to one's business is a laudable accomplishment, but like other good things may be carried to extremes.

One should take sufficient time to watch competitors to see what they are accomplishing and the wisest man will not hesitate to take the time at least once or twice a year to visit some well known and successful manufacturer in his own line. Keeping his eyes and ears open he will not fail to see many new methods and devices which will give him new ideas to be worked out later.

Do you make it a part of your business to advocate incombustible construction every day and on every occasion that presents itself? If not, you cannot expect uninterested parties to boost your product.

It is an excellent plan to use a stop watch on your business occasionally and take time to stop and record past work, figuring out how much of the work is up to the standard of your original plans, how much work was done for a specified sum of money, then after a thorough weeding out of inefficient men and machinery, make plans for the future, avoiding the mistakes of the past.

Plan your work ahead, so that if you should be called away suddenly, it will be an easy matter to leave orders with the foreman to proceed with the work.

Being ready is half the battle.

When a runner prepares for a race he spends much time in getting ready, but after starting the race all other thoughts are put aside and all of his energy is concentrated in getting around the track and reaching the goal.

You may profit by this example by planning and preparing the work and then concentrating every effort on the problem at hand.

## THE USUAL RESULT.

A fire in a frame building at Packingtown near Oklahoma City, so heated an adjoining concrete block building that before the fire department reached the scene, while the frame buildings were only partially burned, the concrete blocks had expanded so that the walls were cracking and it was not safe to walk through. The fire was put under control, but the fire proof concrete hollow block house cracked and crumbled so from the heat near it and the water that it was found necessary to throw on it that it is now nothing but a pile of debris. The frame building which burned and the concrete building which caved in will be replaced by brick structures.

## THE PANAMA CANAL EXPOSITION.

The decision in favor of San Francisco as the site of the Panama Canal exposition of 1915 will prove a great boon to building operations at that place, which have undergone somewhat of a decline since the completion of the new San Francisco, which is an exposition in itself of the grit and determination of a people whom no disaster can depress or calamity crush.

From an architectural and building point of view much is expected of San Francisco and we have faith that our expectations will not be disappointed.

## CEMENT FLOORS DUSTY.

An exchange says: "Cement floors, particularly in office buildings or warehouses, which do not have the advantage of obtaining the necessary moisture from the atmosphere such as outside floors and sidewalks on which the dew falls at night, if properly protected and kept damp, become prematurely dry and are therefore more or less porous and weak, causing easy abrasion under foot traffic, or what is commonly known as dusting."

## A WANT AD DID IT.

Success means accomplishing what one starts out to do.

To some this may mean affluence and power, to others it may mean the chance to make an honest living, which is sometimes denied by lack of opportunity.

One of the sure ways to succeed is to use the means nearest at hand.

A small classified AD has been known to do the seemingly impossible and proven a "starter" to a life time of "Successes" to many ambitious men.

Mr. M. L. Johnson of Mendota, Ill., is proud to acknowledge that he owes his success to "Brick and Clay Record." In a letter he states: "I must give 'Brick and Clay Record' credit for my present position as manager of the Mendota Tile Works, which I gained through a small Classified AD in your journal, and have held for two years, with good prospects for several more."

## EXORBITANT EXPRESS CHARGES.

According to a decision recently handed down by the Interstate Commerce Commission, rates on brick, shipped by the Adams Express Co., as samples, are unreasonable. This decision is of vast importance to every brick manufacturer in the United States, as it will have, it is said, an indirect bearing on rates charged by other express corporations.

In its opinion the commission showed that there has been a general advance in express rates during the last 15 years, and especially on sample face brick sent from the Columbus district. In reviewing the case the report says:

"In 1896, and for many years prior thereto, samples of brick and terra cotta were carried at merchandise pound rates, with a minimum charge of 30 cents per package. About 1897 the minimum charge was increased to 35 cents, the rate remaining the same. In 1898 the graduated charges under base rates, ranging from 40 cents to $6 per 100 pounds, were materially increased, in some instances 40 per cent. In 1903 the charges on sample brick were advanced from merchandise pound rates to merchandise graduated charges.

"A shipment, weighing 12 pounds, from Columbus to Chicago, cost 35 cents on May 24, 1902, and on Nov. 10, 1910, a shipment of the same weight between the same points cost 60 cents, an increase of over 71 per cent.

"The evidence shows that the brick manufacturers are almost wholly dependent upon the express companies for the transportation of their samples. They cannot ship them by mail because even one brick exceeds the weight limit; neither can they ship by freight because in most instances time is an important factor.

"Exhibits in the record indicate that the business which the express companies derive from the transportation of sample brick is very considerable and extends over a wide range of territory. For instance, the record shows that one manufacturer paid to the express companies for the transportation of sample brick approximately $60 per month, another manufacturer $50 per month and another averaged over $400 per month. It is estimated by the complainant that the total amount paid per annum to express companies for the transportation of sample brick would amount to $180,000.

"Upon the whole record in this case, we are of opinion and so find, that the charges be assessed by defendants upon which applies the merchandise graduated sample brick under the classification charges, which are assessed at merchandise pound rates, with a minimum charge of 35 cents."

The complaint against the Adams company was used as a test, as all express companies have been charging the exorbitant rates on sample brick. Ohio manufacturers, organized as the Ohio Face Brick Manufacturers' Association, filed the case at Washington last fall.

Two Columbus, O., men are officers of the association —J. M. Adams, manager of the Ironclay Brick Co., president, and L. G. Kilbourne, manager of the Columbus Brick & Terra Cotta Co., treasurer. R. L. Queisser, of Cleveland, O., is secretary, and the case was presented by H. H. Henry, a Cleveland attorney.

## NEVER DRIES UP.

Johnny (watching the brick on the cut-off table. "Say, Pa, are we all made of clay?"

Pa (sadly), "Well, Johnny, I think you and I and the baby are, but I doubt if your mother is, or she would dry up occasionally."

## VALUE OF TECHNICAL EDUCATION.

One of the most helpful influences which is tending towards the uplifting of the clay working industry, especially in the line of ceramics, is that of the Alfred University at Alfred, N. Y., under the direction of Prof. Charles F. Binns.

Pupils at this university are taught the science of clay working in all its branches, beginning with the analysis of clay as taken from the earth with especial regard to the various uses for which it is used. In the clay testing department a complete understanding of the operations of clay manufacturing is gained from experiments with clays under the varying conditions to be found in the different localities with methods for overcoming the difficulties arising from the presence of sand, grit and various agencies detrimental to best results.

This university also offers excellent opportunities for the education of women along the lines of modeling and making of fine pottery; many of those taking courses there have fitted them for teachers in the grades and high schools.

Bulletin "A," which has recently been issued by this university, contains a detailed account of the work of the school.

The clay manufacturing industry is just beginning to "come into its own" by reason of the general movement toward publicity and also the movement for the conservation of the forests which finds an immediate ally in the production of clay wares, for as the supply of lumber decreases the use of tile and terra cotta must increase proportionately.

## FIREPROOF BUILDING IN PARAGUAY.

United States Consul Cornelius Ferris, Jr., located at Asuncion, Paraguay, in a recent report to the Department of Commerce and Labor at Washington, D. C., says concerning brick and other clay products in that Latin-American country:

"Practically all buildings in the towns in this country are constructed of common brick, plastered over with stucco, and roofed with tile. The inside is finished the same as the outside. The materials are close at hand, and there is little or no labor acquainted with other methods of building.

"There appears to be no disposition to depart from the general order of construction always followed here, and there is no new building going on in this city except of minor importance, nor is there a prospect of any new building projects. There is, however, an increasing use of corrugated iron, imported from Europe, but the demand is limited. Corrugated iron is used for outside window shutters on all business houses, and is coming into use more and more for roofing sheds, and to a less extent for the sides of such structures. Corrugated iron is also used for sides and tops of the new equipment of freight cars recently received from England by the Paraguay Central Railway. As that railroad is at present carrying on an extension of its line and has considerable construction work in hand, correspondence with its general manager and its chief engineer in charge of shops [names on file in Bureau of Manufactures] might be profitable. Both may be written to in English."

Don't neglect to renew your subscription to "Brick and Clay Record." We are planning a number of special issues, anyone of which alone, will be of sufficient value to repay you for the dollar expended for 24 big live issues.

## STANDING FOR PRINCIPLE.

The well-known firm of Taplin, Rice-Clerkin Co., manufacturers of clayworking machinery at Akron, O., have been compelled to adopt the open shop policy because of recent labor troubles. he plant is now running in a satisfactory manner, on full time, under the new system.

The trouble started in March, beginning with a demand of the molders for an increase in wages. The company met the demand in a fair manner, but through the unreasonable and unfair position taken by some of the employes was compelled to adopt the open shop, the new plan taking effect April 3, since which time a heat has been taken off in the foundry every day.

Mr. W. Clerkin, head of the company, has a reputation for treating the employes of his company fairly and justly and he thinks matters would have been satisfactory except for the interference of the "walking delegates." He adopted the open shop policy because compelled to do so to defend the company's welfare and as a matter of principle. He advises that the situation is now well in hand and that the plant will continue to run at its full capacity.

## EXTRA HEAVY SHALE CRUSHER.

The Williams Patent Crusher & Pulverizer Co., of St. Louis and Chicago, desire to call your attention to their extra heavy shale crushers, showing on page 16, which, while not a new machine, has never been brought to the attention of the brick maker.

This machine will appeal particularly to those brick makers who use a very hard shale, hard fire clay, or similar material, and now reduce it in a dry pan. The Williams people claim that by using one of these machines ahead of your dry pan and breaking material down to 2 in., 1½ in., or even ¾ in., you increase the capacity of the dry pan, decrease the horse power on the pans, and lessen your grinding cost very materially, as it is a well-known fact that if a dry pan is fed with material that is uniform in size, it will grind faster and with less power.

These extra heavy crushers have been used for years in cement plants for breaking down limestone and shale. They are in use by the Iola Portland Cement Co., a letter from which company is shown also on page 16. These people have them in use at Iola, Kan., and Dallas, Tex. They are also used by the Texas Portland Cement Co., the Southwestern States Portland Cement Co., and an extra large machine has just been sold to the Dixie Portland Cement Co.

One of these No. 6 Williams crushers, at the Iola plant, is now handling 160 tons per hour, taking a 6 in. limestone and reducing it to ¾ in. and finer, and has replaced three No. 5 gytratory crushers previously used. The Williams people believe that this is a very interesting proposition to the brick maker using a hard material in the manufacture of his products, and information concerning the various eight sizes manufactured by them will be cheerfully given to those writing to the company at any of their offices, as shown in the advertising pages of this issue.

They also wish to state that in addition to those deck sweepers or wet clay grinders already mentioned in the pages of this publication, they have quite recently taken orders for five extra large deck sweepers which take clay direct from the bank and reduce at one operation suitable for brick making. This deck sweeper is shown on page 17 of this issue.

## CLAY SCRAPINGS.

The Ridgeville, Ind., Tile & Brick Co. have increased their capital stock. Mr. T. A. Almonrode is president of the company.

## BURKETT-JAMES CONSTRUCTION CO.

For many years past there has been a strong demand for machines which will successfully and economically handle clay, sand and gravel and load them on cars. The demand has also been equally great for a machine to remove overburden from clay. Many machines which handle material well on dry land, fail entirely when the land is low and wet. The Burkett-James Construction Co. has solved the problem and have constructed several machines to fill the various requirements found under the diverse conditions found about clay plants. They have issued a catalog describing fully the various scraping and automatic dumping machines for loading sand, gravel and clay and removing over burden. This catalog will be sent to any one upon request addressed to the main office at Macon, Georgia.

## A WISE MOVE.

Fire Marshal Mark Kesler of Oklahoma City has asked the Commissioner of Public Safety to draft and submit to the city council an ordinance prohibiting the building of a frame house with a brick veneer. He states that: "The walls are not supported and bonded together as is the case in a brick house, that the material in the walls is inflammable, which is not the case when hollow block are used with a brick veneer and that it is impossible for the fire fighters to know what moment the walls are apt to fall in or out if there is a fire between the laths and the brick consuming the studding, the wall having no support or stability can not be pierced from the outside to advantage and the fear of a collapse at any moment militates greatly against the efficiency of the fire department when fighting fire in a building of this construction." Chief Kesler would have this ordinance apply to all buildings of more than one story and more than 60 ft. in length.

## ONE OF THE BUSIEST.

The Reynoldsville (Pa.) Brick & Tile Co. was incorporated in 1902, since which time it has been actively engaged in manufacturing brick and tile.

The output at present is confined to vitrified building and paving brick and block. The company is well supplied with a fine quality of shale for which that section of Pennsylvania is noted, in addition to immense beds of a fine grade of soft fire clay, specially adapted for paving brick, which test as low as 12 per cent abrasion in a standard rattler. The output for the year averages about 7,000,000 brick, about one-third of which are paving brick and block.

The officers of the company are: A. O'Donnel, president; H. L. Hoke, vice president; Clyde C. Murray, secretary, and Henry Herpel, treasurer.

## REMOVAL NOTICE.

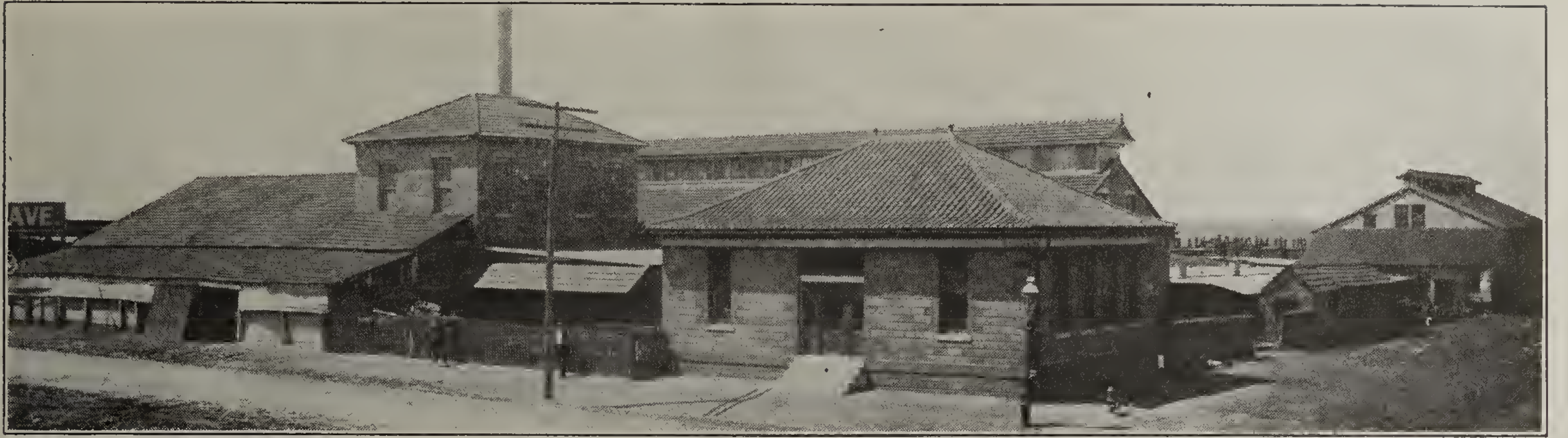
The Under-Feed Stoker Co. of America have moved their general offices from the Marquette Bldg. and are now located on the 18th floor of the Harris Trust Bldg. on Monroe Street, between Clark and La Salle, Chicago, Ill.

Better Write that AD Today and send it at once to the Classified Department for the May 15th issue of "Brick and Clay Record."

If you postpone it until the "next issue," you may be Too Late and the "other fellow" will probably "beat you to it." Be a winner, by being always just a little ahead of time. Start now.

The Joy Construction Co., Birmingham, Ala., wants prices on terra cotta.

The Plant of the Mound City Roofing Tile Co. Note the Tile Roof on the Office Building.



# MOUND CITY ROOFING TILE

Located at 3301-9 Morgan Ford Road, St. Louis, is the modern up-to-date plant of the Mound City Roofing Tile Co. The office building, the machinery building and the two-story building near, are built of hollow vitrified tile, furnished by the Vigo Clay Co., of Terre Haute, Ind. As will be seen in the illustration, the roofs are covered with tile, which are simply laid on the roof without fastening, the weight of each tile holding the others down, as they are of the interlocking type, made by the Mound City Roofing Tile Co.

The shale which is used in the manufacture of the tile is brought from Malcolm Station, thirteen miles from the plant. It is stored in the clay shed, which adjoins the two-story building shown, where it is allowed to go through the sweating process, at least two weeks, before it is ground up in the seven-foot dry pan. After grinding, it is elevated and screened through a piano wire screen, after which it is run into an eight-foot pug mill, where it is thoroughly pugged, sufficient water being added to form a stiff mud. It is then deposited in clay bins, of which there are four, each bin having a capacity for one day's run, so that the pugged shale is always four days old before it is used.

From the clay bin the material is transferred into a Fate combined hummer machine, where it is repugged and put into proper condition and cut into the proper size clots for making tile. These clots are thrown up against the dies of the revolving press, of which there are two. In the same room are two Grath trimming presses for making all kinds of crestings, hip rolls and starters, and special tile. In addition to the two trimming presses and two revolving presses, the plant is also equipped with a little Giant auger machine, furnished by the Illinois Supply & Construction Co. for making shingle tile and imperial Spanish tile. The capacity of the different machines is as follows:

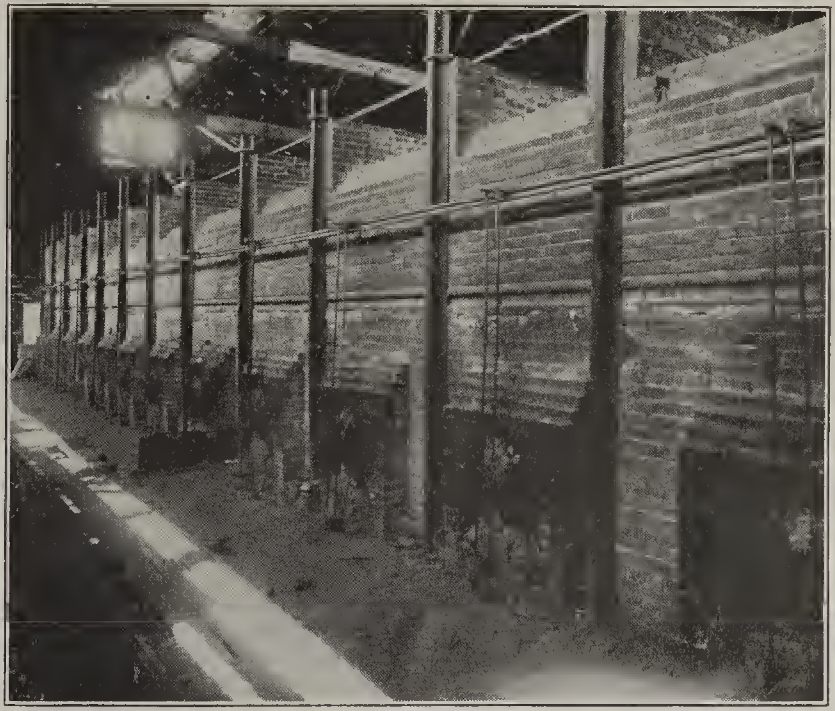
Each revolving roofing tile press has a capacity of 5,000 interlocking tile per day; the trimming press turns out from 400 to 500 crestings per day and from 700 to 900 hip rolls per day; the auger machine will turn out 12,000 shingle tile or from 6,000 to 8,000 imperial Spanish tile per day.

In addition to the above the company is well equipped for making terra cotta fittings, such as terminals, special starters, special crestings, and large size finals.

The dies used for making the tile are cast iron forms filled with plaster dies.

The capacity of the plant is 10,000 interlocking tile per day, or 12,000 shingle tile and 5,000 interlocking tile per day, or 5,000 interlocking tile and 6,000 Spanish tile per day.

From the press room the tile and trimmings are shoved into tunnel dryers, of which there are ten, and after drying 30 hours, are taken out at the other end of the dryer and run directly into the kiln where they are set for burning. As will be noticed, the kilns are long, each kiln having twelve furnaces on each side. The burning is done entirely with fuel oil and is accomplished in from 36 to 40 hours from start to finish, cone 05 being used on top and cones 06 and 07 at the bottom of the kiln. The oil burning system used is the Schurs. The oil is drained into a large underground steel tank from which it is forced to the oil burners by pump pressure, 40 lb. pump pressure being used. The atomizing is done with 80 lb. of steam pressure, the Schurs burners being used throughout. By using oil, all flashed ware is avoided and the tile are all of a beautiful red color throughout also all colors of glazed tile are produced with practically no loss in burning.



One of the Large Kilns in Which Brick Are Burned with Fuel Oil.

The Mound City Roofing Tile Co. is shipping their tile from Maine to California and from Minnesota to Texas, and have had a fine run of business for the past three years.

## GETTING IN RIGHT.

By Elmer C. Pepper.

One of the very seductive propositions often brought before the public is the brick proposition, because a good large profit is seemingly in sight. According to statistics and observation, more brick plants are failures than successes. The question naturally arises: Why? For the reason that not enough care and caution is exercised in the preliminary stage. It is figured that the clay costs so much per thousand, so much to make, set, burn and load—this would be called the cost, and the difference between the selling price and said cost is all profit. But ordinary cautions would demand that the following steps be carefully looked after, right at the start.

What are your market and shipping conditions? Would it not be unwise to build a plant some distance away from shipping facilities when your competitors have better facilities? Would it not be also unwise to build a large plant when the demand would be satisfied with the output of a smaller plant? And must you not equip your plant with most modern machinery and kilns, so as to be able to meet competition successfuly? Business judgment answers in the affirmative.

The primary foundation of the brick plant rests upon the quality and quantity of the clay bank or field. The clay site should be bored correctly, samples of the clay taken up in a systematic way and a correct record taken and kept thereof. This should not be done by an ordinary laborer, but by a thoroughly capable party with the necessary experience, otherwise the future clay proposition may rest upon an unreliable foundation. Take sampling in a metal ore mine for instance; have you ever noticed how carefully that is looked after? Unintelligent sampling may ruin the best mine in existence, because the smelter results will not check up right. Be sure that your sampling is done properly. If you fail to have this done, then do not blame "the other fellow."

After the clay site has been prospected and thoroughly sampled, the next step to be taken is to send some of the sample clay to different plants with requests that brick be made and burnt. When these sample brick are returned some may indicate poor results and others fine results. But are such results conclusive? No! decidedly no! Do you know whether the machinery used was thoroughly cleaned before your clay was passed through? Do you know in what part of the kiln or at what temperature the submitted brick was burned? The fact of the matter is that you do not even know whether the brick returned to you was made from the clay submitted. You say that the people who burnt your clay had no motive to substitute. Let me cite a few instances: A clay bank in Indiana was said to furnish clay that would burn a good yellow brick, and as a matter of safety was sent to a red-brick plant where the brick were made and put in a certain kiln. When this particular kiln was opened there was not a single buff brick in the kiln. At another place the brick yard owner mixed the substituted clay with oxide of iron so that the prospective brick man would get a red brick of good color and one, too, that carried the weight.

At another plant a paving brick shale was burnt in a fire brick kiln, the results were negative in this case. At another so-called test, the request was made to steam the clay, which was conscientiously done, but the clay was not put through the dry press until it had thoroughly cooled off and when the new plant was later on run with steam clay, still warm, proved to be a complete failure and some tall remodelling had to be done.

The next party who is called upon is the machine man, who sometimes volunteers to make a complete test free, or for a sum of money to be considered part payment in case the deal goes through. Human nature is human nature, and with some men, if there exists a way to make a brick on the tester's machine, it surely will be done even if it should bar out the use of this particular machine as a productive money maker. If you do not believe it, look over the advertising columns and read ads like this:

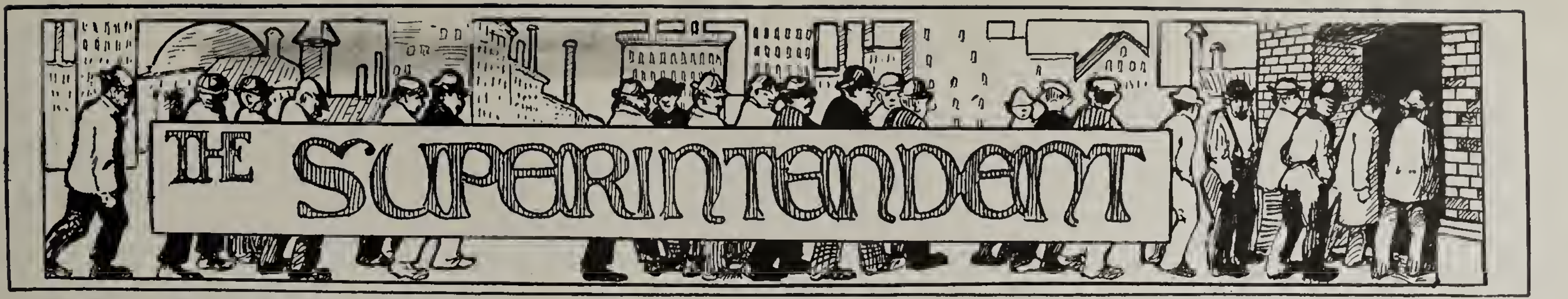
FOR SALE—A machine but very little used and not found suitable to our clay, or get on the right side of some brick maker and ask him why he changed his machinery, and he may tell you "Our old machine did not work very satisfactorily with our clay," or "Our old machine is out of date and the new machine is so much better."

There is progress in brick machinery as in everything else, and the soft-mud, stiff-mud and dry-press machines have their ardent advocates and without doubt one of the above mentioned types is better suited to your clay than the others.

The next point to be taken into consideration is the kiln man, and the kiln proposition is of the greatest importance to the success of the plant, for if the goods are spoiled in this part of the process, then all expense and cost incurred before will prove a total loss, and bear in mind that a poorly-made brick, well burnt, is still a merchantable and salable commodity, while a well-made brick, poorly burnt, will always prove a loss. There are many different types of kilns, and all are good for certain purposes, the proper selection depending upon many things as regards clay, mode of manufacture, fuel and market conditions. It is but fair to presume that most of the brick plants are started by commercial men, and oftentimes their business principles clash with the manager who may not be a practical brick man. It takes years of experience to gather sufficient data and information for any one man to be able to combat all conditions arising at a brick plant The plants that start off all O. K. at the start are very small in numbers.

The worst errors made in starting brick plants are taking gratuitious advice from people who profess experience in operating brick plants or from persons who are looking to the accruing profits. These statements are not made to deter people from going into the brick business, but rather to caution them to carefulness, so that the plant may be a money maker.

Some may say that the above statements tend to show the negative side of the brick business and the question arises in the reader's mind: "What would I do if I started a brick plant?" My answer would be, first I would have the property prospected and sampled carefully, and turn the samples over to a reliable technical firm for a thorough test to get all the necessary data for intelligent judging of the future conditions. Then I would ask for the following physical tests. Size of grain—tensil strength—degree of plasticity—shrinkage in drying and burning (speed and percentage)—temperature of vitrification; incipient, complete, and viscous color at different burning temperatures, and the specific gravity. If I found indications that the material was good for pavers, I would then send enough clay on to the laboratory to have a rattler test made. With these tests a better comparison can be made as to the different machines, and if the wet process is adopted, the type of dry tunnels can then be selected. The class of ware to be made and the fuel also being known, it is not a difficult matter to select a suitable type of kiln.



## DEPRECIATION.

In figuring the cost of production of manufactured goods, with consequent profits and losses, the natural depreciation of the plant and machinery is frequently lost sight of, as a consequence no funds are set aside for "upkeep" and in a short time the property becomes so run down as to hinder progress to such an extent that it is often found necessary to borrow money to get things in shape again.

In the following article by W. B. Jackson, taken from the Industrial Magazine, some practical thoughts are given on the question.

"Depreciation requires most thoughtful consideration on account of the insidious nature of its growth. When a well designed and constructed property is new it may be operated for some years without any expenditures on account of depreciation, but after a limited period apparatus becomes worn out or obsolete, and its renewal or replacement becomes necessary. In fact, depreciation must be provided against every part of the physical property except land. But the growth of depreciation or deferred maintenance expense does not necessarily become apparent in the operations of the property until the necessity of relatively large expenditures for replacements is at hand, and there is the possibility of such time arriving without those in charge of the plant realizing its approach. When such replacements become necessary they necessitate expenditures in large amounts which cannot be taken care of by the usual appropriations for current maintenance, and their cost may not be cared for by funds or capital account, for the replacements add nothing to the capital value of the plant except in so far as the replacements may be of a more costly character than the original, in which case the difference in cost may appropriately be charged to capital account.

Failure to appreciate the inexorable law that apparatus must come to the end of its useful life has resulted in the financing of economically unsound enterprises, and in the embarrassment of good enterprises through the distribution to the stockholders of funds that should have been held in reserve for deferred maintenance.

It should be recognized that so long as a property is in condition to give as much and as good service as when it was new, its value, as represented by the amount of legitimate earnings to which it is entitled, cannot become reduced owing to depreciation in its plant. But any depreciation that may have occurred should be offset, when practicable, by a reserve carried for that purpose, or if the property has been unable to make full appropriations to the depreciation account, complete knowledge of the situation should be possessed by the management and the building up of the reserve in the future should be a most important financial consideration.

One of the simplest ways in which the books of a company may be arranged to show the facts in relation to depreciation appropriations and reserves is to have accounts showing the amount by which the physical property of the company is depreciating month by month, as determined by estimate made in the manner heretofore explained, showing the actual appropriations made to the depreciation fund, and showing the amounts expended for replacements on account of depreciation. Any income derived from the investment of depreciation reserve may be utilized as accretions to the reserve.

An appropriate combination of such accounts will show at all times the relation between the total amount that the property has depreciated and the amount of reserve held to care for this depreciation as well as the relation of the actual amounts appropriated to care for deferred maintenance to the amounts expended for this purpose."

## INSTALLING WATER SYSTEM.

The Kankakee (Ill.) Tile and Brick Co. are putting in their own water system at an expense of about $1,000. Heretofore they have depended on the city water works for their supply.

A 4,000 gallon tank will be placed on a tower 50 feet high. Pipes are being run to various points throughout the yard and to the boilers. The water will be taken from one of the pools in the yard that has never been dry and the water is softer than the river water.

The company expects to save almost the cost of the entire plant within a year or two in the difference between the expense of the two systems.

## NEWS NOTES.

R. S. Root of Chicago, is now manager of the Acme Press Brick Co., Fort Worth, Tex. This company, organized in 1891, now has an excellent trade, extending over the Southern states. It manufactures a red face brick made of shale, known as the "mill sap" brick.

Mr. James Knox, formerly connected with the Denver Sewer Pipe & Clay Co., has assumed the management of the Golden Pressed & Fire Brick Co., with offices in the Continental Bldg., at Denver.

Mr. H. K. Klose, who has until recently been manager of the Lincoln (Neb.) Brick Works, has been engaged as manager of the Seneca (Kan.) Shale Brick Co. This company is now constructing a new continuous kiln, with a capacity of 600,000 brick and hollow tile per month. The company makes an excellent quality of shale brick.

## ENTITLED TO COMMISSION.

Where a brokerage contract makes an actual sale a condition precedent to the right of the broker to demand compensation, the supreme court of appeals of West Virginia holds, Hugill vs. Weekly, 61 Southeastern Reporter, 360, that if the principal and the customer found by the broker enter into a valid contract of sale, and the broker acts in good faith, the latter is not deprived of his right to a commission by the fact that the customer fails to carry out the contract. Having performed his contract, a broker cannot be deprived of his commission, though for some reason not involving culpability on his part, but due to the misrepresentation of the seller, the contract of sale fails of execution.

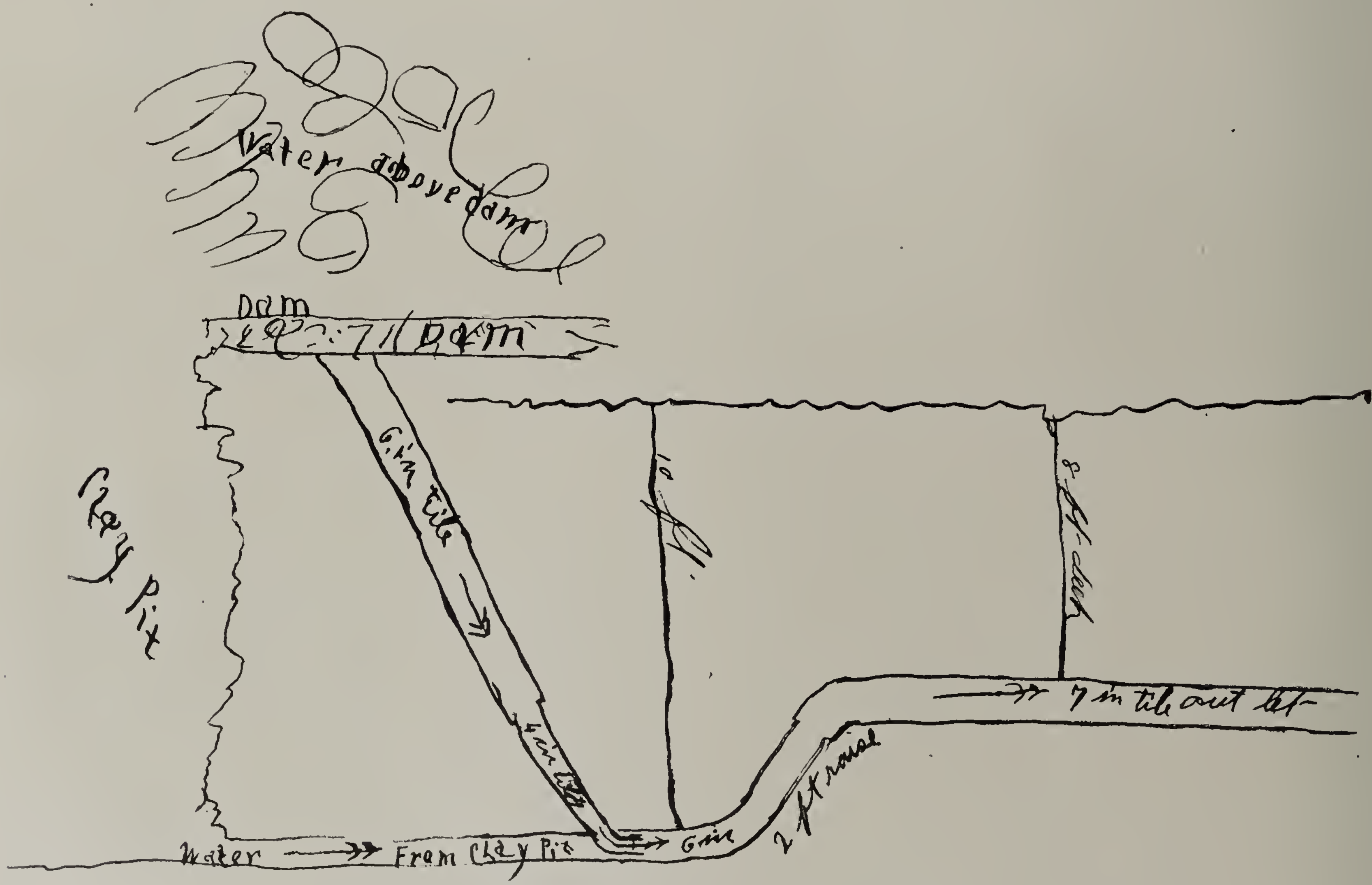
Try a Want or For Sale Ad. in "Brick and Clay Record."

## MAKING WATER RUN UP HILL.

Mr. N. Currie of Glencoe, Ont., Canada, writes interestingly of how he contrived to do the impossible, namely, made water run up hill. He says, "Any one making the statement that water can be made to run up hill without the aid of a ram, would be adjudged a fit candidate for an asylum. I am going to show you how I have my clay pit drained two feet lower than the outlet by the use of tile.

My clay pit is situated on the side of a creek, the same as the majority of pits. Just above my clay pit I have the creek dammed about three or four feet to hold water for my boiler in the dry seasons.

I have a drain 8 ft. in depth in the bottom of the creek near the dam in which I have 7-in. tile. Near the clay pit and dam I have it dropped 2 ft. I have no trouble getting the water out of the pit, only in dry seasons when the stream of the creek gets very small. Then I keep it dammed back and when the water gets up in the clay pit I let same go over the dam into the drain which soon dries up the pit.



Mr. N. Currie's Device for Making Water Run Up-Hill

I use nothing but ordinary tile where I connect my 4-in. pipe to the 6-in. as seen in the cut. I made an elbow of tile and the water has such force as it enters the 6-in. tile, it drives the water up two feet into the 7-in. outlet.

After reading the explanation carefully and studying the cut, if there are any of my American clay working brethren who have any doubt as to the above, I would be glad to invite them to take a trip to Glencoe, Canada, and if they do not find this system working satisfactorily, I will remit their expenses both ways, and while over here, I will show them how we Canadians manage our clay working industry, in which we do not claim to be ahead of you Americans.

I must admit we are twenty years behind you in all other industries but the clay working and in that, I think you are justified in being a little jealous of us. Perhaps, that is why Senator Champ Clark advocates the annexation of Canada to the States and I believe the clay workers of Canada would all welcome the day."

## ASKS FOR INFORMATION.

The secretary of the National Association of Manufacturers wishes to know the name of the manufacturer of brick known as "Shawburn." If any of our readers can inform us on the subject we will be pleased.

## NEW MANAGER.

G. H. Atherton has become manager for the Gold Bros. Brick Co., of Big Stone City, S. D. The plant is undergoing some improvements, which will make it a first-class one. It has a capacity for 40,000 wire cut brick and 20,000 hollow brick per day.

## STRAINER IN OIL CAN SPOUTS.

Small particles of dirt and foreign matter get into the small end of the spout of oil-can and clog it up so no oil can be forced out. Insert a small sieve, shaped like a thimble, in the lower end of the spout. Any fine gauze wire can be used for the sieve. This catches all the dirt, but does not prevent the oil from flowing freely.

## AN INQUIRY.

The owner of an extensive bed of quartz gravel, about pea-size (underlying a stratum of kaolin), which shows by analysis to contain 97.04 per cent silica, is desirous of knowing the value of such mineral and the uses to which it might be applied.

We would be glad if some of our readers could give information on the subject.

# THE PAVING BRICK INDUSTRY

### OVER THE ASPHALT SEA.

Oh, sail with me o'er the asphalt sea,
  The tide doth favor us;
Though the waves beat high, both snug and dry
  Is the good ship Motor Bus.

Like a racer brave she takes the wave
  That would her course disturb,
From her upper deck we count each wreck
  A-rotting on the curb!

As down she sinks from the billows' brinks
  She quivers to the keel;
Thank God for the hand that's in command
  And the stout heart at the wheel!

There's many a shoal to try the soul
  And many a depth unplumbed;
Our course we mark by the noble bark
  That to the sea succumbed!

Oh! sail with me o'er the asphalt sea
  In this gallant craft of mine;
The bravest choose the avenues,
  Let cowards sail the brine.

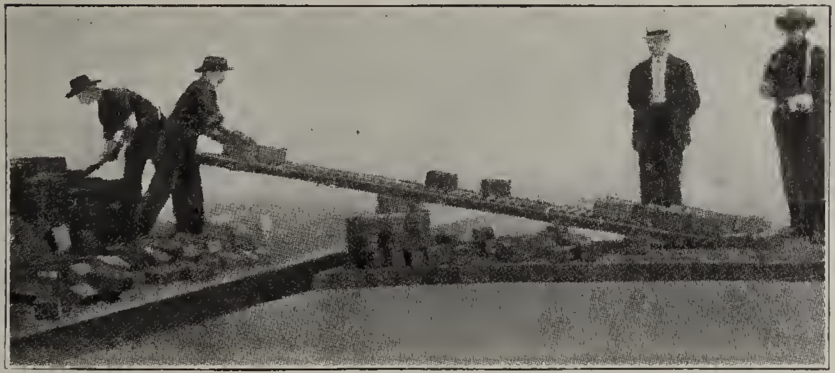
—New York Times.

## EDUCATING THE ENGINEERS.

"Manufacturing and Laying of Vitrified Brick" was the subject of an address by Mr. M. P. Blair, secretary of the N. P. B. M. A. before the members of the engineers' Club at their recent meeting in Cleveland, Ohio. It is just these kind of talks which are needed to convince engineers throughout the country of the superior qualities of brick paving, and no one knows better than Mr. Blair how to expound the virtues of the best paving on earth —brick.

## GRAVITY CONVEYOR.

The gravity conveyor, while not a new device, has proven a great aid in conveying brick from the stacks to the pavers on street work.



Gravity Conveyor in Operation.

The cut shows the gravity conveyor in use on street paving work in Cleveland, Ohio. The frame is made of steel in 4 and 8-ft. lengths, coupled together. The brick travel by their own weight any distance desired, on a 4-per-cent grade, running over steel rollers. It is claimed that the conveyor saves the labor of eight men in supplying brick to the pavers.

## BRICK PAVED COUNTRY ROADS.

Brick Paved Country Road, Allegheny Co., Pa.

The illustration shows the Greensburg Pike, near the county line of Allegheny County. The road is paved with brick for a distance of four miles. Eighteen miles of other roads in the county are similarly paved, most of them having been constructed in 1910. Chief Road Engineer S. D. Foster receives delegations of farmers who congratulate him on the good qualities of the roads and inquire when more will be forthcoming. The brick paving costs about $1.45 per square yard. The roads as a rule are paved 15 feet in width; there are 11 feet of graded dirt surface, and gutters complete the 30-foot width of the road.

## MOTION IN BRICK PAVEMENTS.

That brick pavements, and in fact pavements made of all kinds of material, expand with the heat and contract with the cold is of course well known; such expansion having in some instances resulted in the arching of a pavement, the center lifting in some cases several inches from the foundation. We do not recall, however, having seen any figures as to the actual amount of expansion and contraction caused in pavements by changes in temperature. An investigation of the amount of such movement is being undertaken by the Bureau of Standards, which has sent from Washington two of its engineers to study the brick speedway at Indianapolis, which is considered perhaps the most perfect specimen of brick paving in the country. From the results of these tests it should be possible to estimate with more exactness the size of expansion joints which it is necessary to provide in constructing brick pavements of various widths and in various climates.

At the same time these engineers propose to test the passing of a load over it. For this purpose a sensitive spirit level will be used which will indicate a change in level at one end of one ten-thousandth of an inch. This would not seem to have much immediate value to the engineer, although it may serve to indicate the value of certain coefficients of elasticity and other properties of brick pavements.

## COAST NEWS.

Our California correspondent advises us that interest in paving brick around San Francisco has been steadily increasing for several years, though so far the amount used is small. An expanding market is apparently expected, however, judging by the number of plans for producing this material.

The Vallejo Brick & Tile Co. has been turning out paving brick for two years or more, and while so far the product has been used almost exclusively for sewer work, the management expects to sell quite a lot for paving purposes this year.

The Oakland Paving Brick Co. also expects to start work very shortly at a new plant in Alameda county, and the Houze Brick Co., of Vallejo, Cal., has been arranging to produce pavers during the present season. The pavers recently laid in Oakland, however, were brought from Seattle.

The Los Angeles Pressed Brick Co. is selling a good many pavers in the vicinity of San Francisco, both for public and private work. So far it has been impossible to place any of this material in municipal work in San Francisco.

The United Materials Co., which handles the Los Angeles Pressed Brick Co.'s products in northern California, has recently taken orders for a lot of pavers to be shipped to the Puget Sound country. The output of plants in that vicinity has formerly been in excess of the demand, but this year the amount of paving under way has necessitated the shipment of material from other points.

## OHIO PAVERS.

The paving brick and block manufacturers have made note of the various municipal governments in Ohio which have been selling their bonds for street and sewer work, with the result that the plants in this branch of the trade are very active. Indications are that such activity will continue throughout the year.

At the first dash out of the box, the County Commissioners of Columbiana County, in session at their offices at Lisbon, O., decided to let the contract for 15½ miles of paved highways in several parts of the county—the heaviest improvement ever ordered at one time on the country highways in that county. Here is an excellent opportunity for sales for paving brick and block, for over 60 miles of roadway are to be paved in this county under the direction of the County Commissioners.

After a three months' idleness, the plant of the Ohio Mine & Manufacturing Co., at Shawnee, O., has resumed operations.

Paving brick manufacturers throughout Ohio were very much interested in the bill recently passed by the Ohio Senate, and known as the Hudson bill, which provides for a half-mill levy for a state highway construction, maintenance, improvement and repair fund. The bill may mean the raising of $6,000,000 each year in Ohio for roads.

The plans of the Enameled Vitrified Brick Co., which will market a paving brick to be made from sand and lime, call for the erection of several other plants throughout the country. William and J. J. Urschel are at the head of the new company, whose headquarters are in Toledo.

## ERIE PAVING RECORD IN 1910.

The paving done in Erie, Pa., last year reached a total of 56,214.27 square yards of asphalt and 38,147.65 sq. yds. of brick, with 33,771 ft. of curbing, the entire cost being $163,003.97.

## EASTERN NEWS.

The paving brick interests in New York City report business from surrounding towns very encouraging. The fact that approximately $1,000,000 will be spent for street improvements in New York City within the year has spurred the paving-brick interests to hustle for their share of the prospective business.

James M. Porter, of Pittsburgh, whose plants are located in West Virginia, has announced that he has only recently closed a contract for over one million pavers to be delivered this summer. This has proved to be one of the largest contracts let so far this season.

## BREAKS OWN RECORD.

An exchange states that the Purington Paving Brick Co. recently broke its record for tons of raw material made over into finished brick in a single day, turning out 1,488½ tons of brick. The previous record was 1,250 tons or 330,000 brick. Once before 335,000 brick from the four machines were finished, but they were smaller than the present product. New machinery has increased the output.

## BEST METHOD OF APPLYING ASPHALT FILLER.

In its report at the last annual convention of the Illinois Society of Engineers and Surveyors the Committee on Roads and Pavements stated that the pouring method, as has been very commonly used, of applying asphalt filler for a brick pavement should be abolished, as it was both wasteful and inefficient. It was stated that by using a wide fan-shaped snout to the can from which the filler is poured, keeping the asphalt very hot and working from the gutters up to the crown the material may be cheaply and quickly applied. Following the application of the hot asphalt a squeegee in the hands of a competent workman should be used to remove the surplus of material and in such a manner that the chilled material is not worked over any brick which had not been previously coated direct by the flow from the pouring can. It was stated that in this way all joints are more perfectly filled than in any other way and no cold material can get into them or bridge them. The snout of the pouring can should be not less than 6 inches wide and not more than ¼ inch in the clear opening between sides. This admits of very rapid pouring of hot material, but will not pass any that is chilled. It has the further advantage of being a definitely fixed rule for inspectors to follow and absolutely precludes any possibility of there being a misunderstanding about the proper temperature of the filler when it is applied.

## ASSOCIATION FOR STANDARDIZING PAVING SPECIFICATIONS.

It is announced that the Organization of City Officials for Standardizing Paving Specifications has changed its name to the Association for Standardizing Paving Specifications.

At the meeting held in New York in January of this year the following committee on specifications for vitrified brick pavement was appointed: Chairman, E. H. Christ, member board of public works, Grand Rapids, Mich.; vice-chairman, H. W. Klausmann, city engineer, Indianapolis, Ind.; James H. Sullivan, deputy superintendent of streets, Boston, Mass.; F. J. Cellarius, city engineer, Dayton, O.; J. L. Meyers, city engineer, Ardmore, Okla. Information relative to membership in the Association, the use of copyrighted matter, and the cost of the proceedings will be furnished upon application to the secretary, John B. Hittell, Chief Engineer of Streets, City Hall, Chicago, Ill.

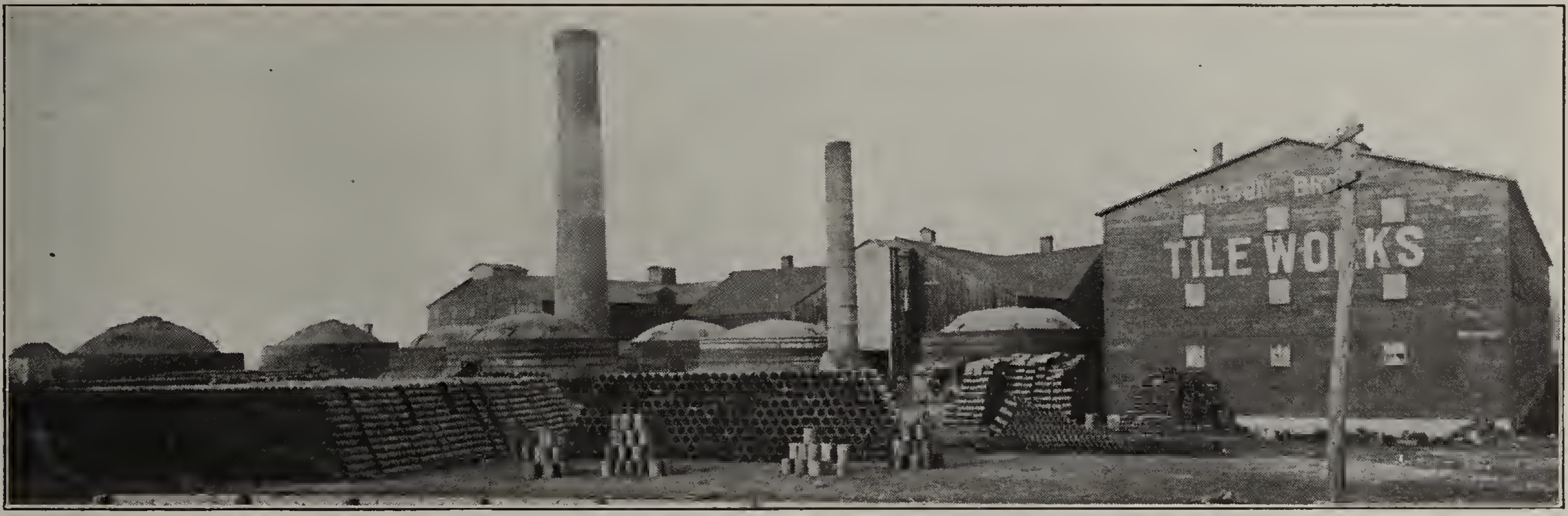
# DRAIN TILE & DRAINAGE

## A SUCCESSFUL TILE MAKER.

Mr. J. A. Wilson, of Dows, Iowa, has recently purchased the plant of the Garrison Brick & Tile Co., and will commence at once enlarging and increasing the capacity. This makes three plants owned and controlled by Mr. Wilson, the other two being located at Garrison and Livermore. His son, W. J. Wilson, is now general manager of the Dows plant, which is the largest of the three, and also takes care of the office work for the Garrison plant.

Mr. O. N. Hildebrant is manager of the Livermore plant and J. R. Patterson is manager of the Garrison plant. The company reports business at all plants opening up briskly, with the outlook good for another successful season.

The illustration shows the plant of the Dows Brick & Tile Works, which has a capacity of about 800 cars yearly. The plant is equipped with an Atlas automatic engine, and two 150-h. p. engines. The machinery was supplied by the Brewer and Fate companies. The soft mud process is used for making the drain tile, which are dried by steam and burned in round down-draft kilns of which there are seven. The shipping facilities are excellent, as the plant is situated on a spur of the R. I. Railway. The company is planning to install electric lights, more kilns and other improvements.



Plant of the Dows (Ia.) Brick & Tile Co.

## WILL DRAIN ST. PAUL DISTRICT.

Contracts have been letfor the construction of a system of drainage ditches for the county of Ramsey, Minn., in which the city of St. Paul is located. When completed these ditches will drain more than half the area of the county and will cost in the neighborhood of $260,000. The contracts were divided. The Interstate Drainage & Investment Co., of St. Paul, secured the open work north of the forks of the main ditch, and Edward Burgitt, of Garner, Minn., the open ditch south of that point. The ditches comprise a total length of about sixty miles.

## CHANGES IN TILE COMPANY.

D. B. Jones has sold his stock in the Luverne (Minn.) Pressed Brick Co. to manager C. W. Sheriff.

## TILE NEWS.

A leading weather prophet predicts a very wet season for 1911, which is being taken advantage of by tile companies to promote the selling of drain tile.

Mr. Madsen, drainage engineer, of the Hutchinson (Minn.) Brick & Tile Co., introduced an innovation by advertising to furnish free of charge a drainage plat for any farmer proposing to tile his land. Mr. Madsen has been kept busy early and late fulfilling his promise, and the prospects are that an immense amount of tiling will be done in that locality the coming season. Land owners are coming to recognize the importance to having a survey made by a competent engineer before laying tile.

The new plant of the Jefferson (Ia.) Tile & Bldg. Block Co., is almost ready to commence working and has a capacity of 5,000 to 6,000 tile per day.

A new Clinton (Iowa) enterprise is that of the Clinton Tile Works.

The Angola (Iowa) Brick & Tile Co. has installed a new tile machine increasing its output by 20,000 4-inch tile per day.

The Winnebago (Minn.) Tile Co. will increase its capacity from six to eight carloads a day.

Kornmeyer Bros. will enlarge their brickyard at Decorah, Iowa, to provide for the manufacture of tile and hollow brick, having placed orders for $4,000 worth of machinery for that purpose.

Mr. Kahn recently purchased a brick machine, new crusher, sand dryer, dumping table and other equipment for his brick yard at Blakeley, Minn.

## TO MAKE TILE.

The Dixie Clay Products Co. was incorporated with $100,000 capital stock at Graysville, Tenn., by Will H. Fox of Dayton, Tenn., and others to establish a plant to manufacture roofing tile, facing brick, terra-cotta, etc., The clay will be conveyed by gravity system and transported to the plant by tramroad. The cost of initial equipment will be $40,000 to $45,000.

# Some Points on Drainage

We are indebted to the Ontario Agricultural College of Guelph, Ont., for a copy of instructions which the college has issued in behalf of the drainage interests of Canada, giving some very valuable information on drainage methods, and we take pleasure in reproducing some of these points as follows:

### A Home-Made Drainage Level.

The first requisite in drainage operations is a level adapted to finding the difference in elevation between two points. Fig. 1 represents a home-made drainage level. It consists of:

(1) An upright piece of wood 5.5 ft. high, 3 ins. wide, and 1.5 ins. thick sharpened at the bottom, and with a slot 2.5 ft. long, beginning within 6 ins. of the top.

(2) A cross-piece bolted to the upright by a bolt through the slot; washers at head and nut. The cross-piece may be rotated about its center.

(3) A long carpenter's level with straight top sitting on the cross-piece, held loosely in position by two buttons.

(4) Two wood screws with thumb-head, passing through the cross-piece and touching the bottom of the level.

When the instrument is to be used, the upright is sunk firmly into the ground as nearly perpendicular as possible. The level is leveled roughly by tilting the cross-piece, and then the thumb-screws are used for more accurate adjustment, either end of the level being raised a little, as needed, by the screws at the end. The photograph shows the level in use. It requires two men to operate it, A to sight, B to carry the measuring pole or staff and note the fall or rise from one place to another.

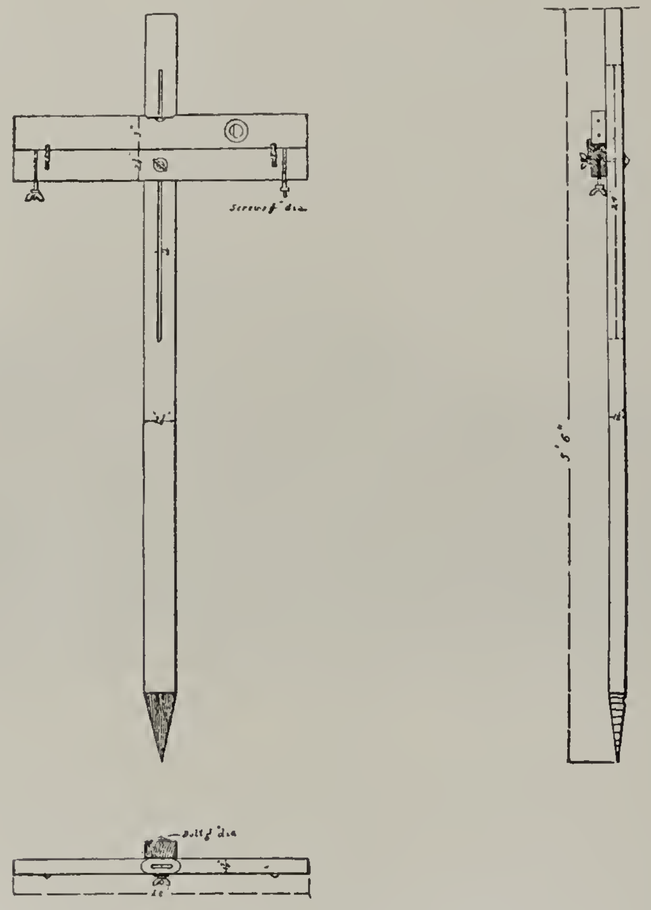


Fig. 1. A home-made drainage level.

### Staking Out the Ditch.

When the location of the ditch has been decided on, it should be staked out with three or four stakes 6 or 8 ft. high, to plow by when digging is begun. They will be removed when the first furrow is plowed. Then the length of the drain should be determined. If a 66 ft. tape is used in measuring, a short stake, say 3 ft. long, should be set up every 66 ft. along the ditch, but these should be set 3 or 4 ft. to one side of the ditch, so that they will not be disturbed by the plow—they will be needed later. If a 100 ft. tape is used, these stakes would be placed 100 ft. apart. We use a 100 ft. tape. For convenience the stakes may be numbered 0, 100, 200, 300, etc.; stake 0 being at the outlet, stake 100 being 100 ft. from the outlet, stake 200 being 200 ft. from the outlet, etc. Measurements and digging are usually begun at the outlet.

### Determining the Fall Over the Ditch.

When the drain is staked we are ready to determine the fall. The level is set up about half-way between stake 0 and stake 100 and leveled, the cross-piece being in line with the stakes. B stands the staff at stake 0 and places his pencil across it (as shown in photograph), and A sights over the level directing B to raise or lower the pencil until it is in line with the level. B notes the height of the pencil on the staff, say 4 ft. 10 ins. for illustration, and then moves the staff to the next stake, number 100, the level remaining in the same position. A now sights forward to the staff and B places the pencil the proper height, as before, say 4 ft. 1 in.

It is easily seen from Fig. 2 that the difference of 9 ins. between the two readings, 4 ft. 10 ins. and 4 ft. 1 in., is the rise from stake 0 to stake 100. The level may now be moved about half-way between stake 100 and stake 200, the staff remaining at stake 100, and the fall from 100 to 200 determined as in the first section. This is continued the full length of the drain.

Determining the Fall Over the Ditch.

Observe again that if the fall or rise between two points is to be found the level is set up about half-way between them and readings taken back to one and forward to the other, the level remaining stationary throughout. The readings are recorded in a note-book suitable for the purpose, and the fall or rise between any two succeeding stations is found by simply subtracting the back sight of one station from the fore sight of the next or vice versa. Don't bother with the height of each level, it is unnecessary and confusing. The heading of each page tells which drain the notes on that page refer to. The following is suggested as a suitable form for the notes.

Note that in six out of the 800 ft. sections there were rises, in the other two there were falls. The six rises total 4 ft. 11 ins. and the two falls total 11 ins. hence on the whole there was a rise from stake 0 to stake 800 of 4 ft. 11 ins. minus 11 ins. equaling 4 ft.

The last column, "elevation," needs a word of explanation. In comparing the altitude of different towns, for instance, we use the sea-level as a datum plane, i. e., a level of comparison. Toronto Bay is 250 ft. the Agricultural College at Guelph 1,150 ft. above the sea, from which we learn that the College is 900 ft. above the bay. In surveying a ditch we cannot use the sea, as a datum, for we do not know how much stake 0 is above the sea, hence we must choose an arbitrary datum. In the example given we have chosen it 10 ft. below the ground surface at stake 0. Then the elevation of stake 0 above this chosen datum plane is 10 ft. Since there is a rise of 9 ins. to stake 100 its elevation would be 10 ft. 9 ins. and so on with all other stakes. To find the fall from any one stake to any other, we have only

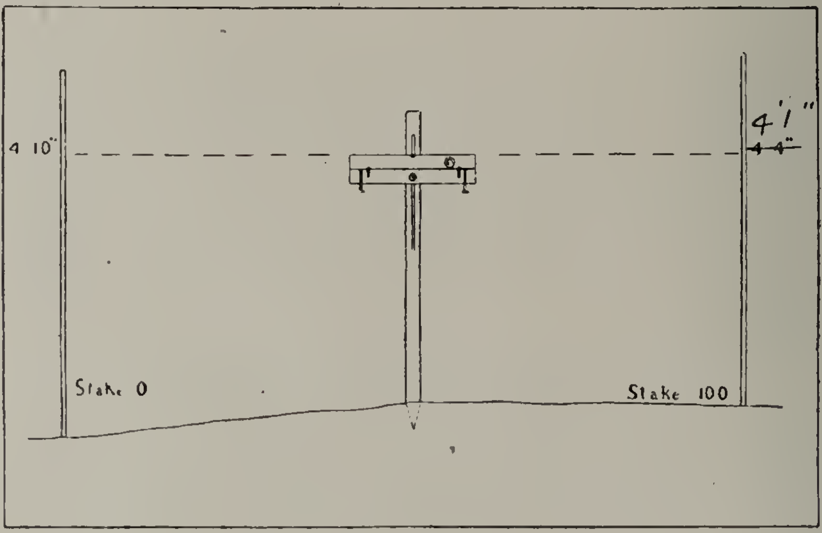


Fig. 2.

to subtract the elevation as given in the last column. For instance the rise from stake 0 to stake 800 is 14 ft. minus 10 ft. equaling 4 ft. the same as we obtained by subtracting the total falls from the total rises. This last column, while not absolutely essential, is the most convenient method of comparing any one station with any other. If starting our survey at the source instead of at the outlet, we would choose for the elevation of the starting point some height greater than the total fall to the outlet.

### Determining the Grade of the Ditch.

We find that with the majority of farmers the chief difficulty is the determination of the grades at which they should dig their ditches, hence we give here a method by which they can work this out in advance of their digging and thus know that they are not going to "run out too soon" nor "run too deep."

**Notes on Lateral No. 1.**

| Stake. | Back sight | | Fore sight | | Fall | | Rise | | Elevation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ft. | In. | Ft. | In. | Ft. | In. | Ft. | In. | Ft. | In. |
| 0 | 4 | 10 | ...... | ........ | ........ | ........ | ...... | ........ | 10 | 0 |
| 100 | 5 | 2 | 4 | 1 | ........ | ...... | 0 | 9 | 10 | 9 |
| 200 | 5 | 3 | 3 | 11 | ........ | ........ | 1 | 3 | 12 | 0 |
| 300 | 5 | 0 | 3 | 9 | ........ | ...... | 1 | 6 | 13 | 6 |
| 400 | 4 | 6 | 4 | 0 | ...... | ........ | 1 | 0 | 14 | 6 |
| 500 | 4 | 7 | 4 | 3 | ........ | ...... | 0 | 3 | 14 | 9 |
| 600 | 4 | 5 | 4 | 5 | ...... | ........ | 0 | 2 | 14 | 11 |
| 700 | 4 | 7 | 4 | 8 | 0 | 3 | ........ | ...... | 14 | 8 |
| 800 | ........ | ...... | 5 | 3 | 0 | 8 | ...... | ........ | 14 | 0 |

It will possibly take a little study to follow it through, but anyone of average intelligence can do so, and after this is once done he can apply the method.

The different steps may be given as follows:

(1) Procure a piece of co-ordinate or cross-section paper, i.e., paper ruled in large squares one inch to the side and these again into small squares one-tenth or one-twelfth of an inch to the side. This can be procured from any bookseller at 5 to 10 cents a sheet 15 x 20 ins. in size. If co-ordinate paper is not at hand a large sheet of foolscap may be ruled with light upright lines and made to answer well. For clearness of reproduction some of these lines have been omitted. (See Fig. 3.)

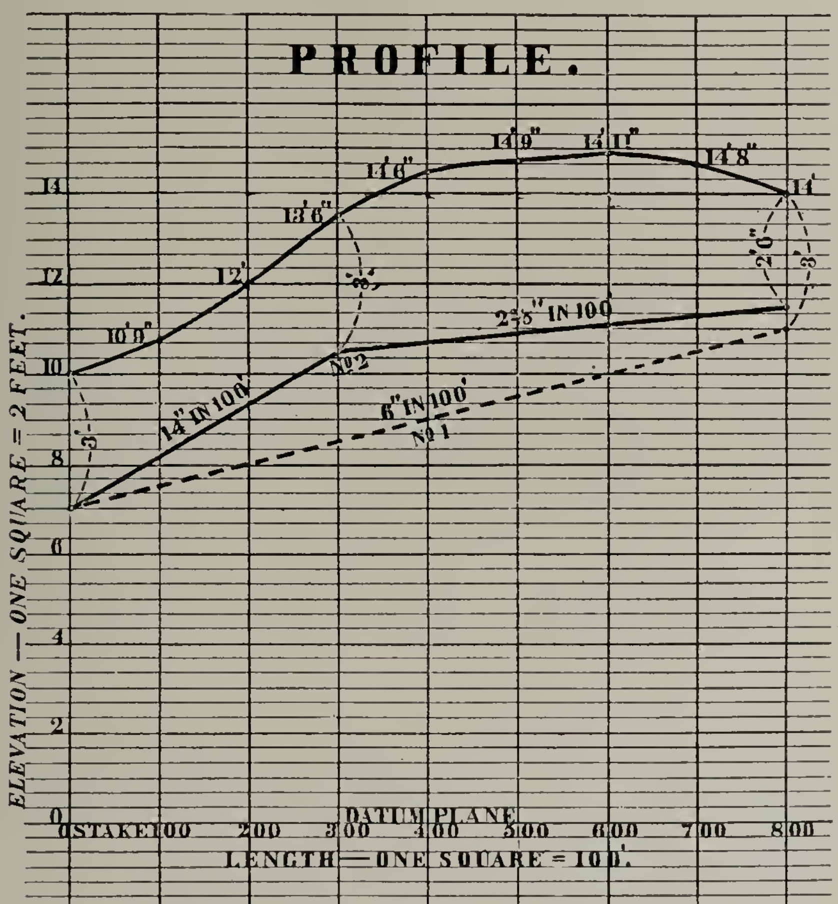


Fig. 3. Illustrating method of determining the grade or grades for ditch bottom.

(2) Let elevation be measured right and left on the paper and distances between stakes be measured up and down. The datum plane or level of comparsion will then be at the bottom of the paper and stake 0 at the left hand side.

(3) Let one large square up and down equal 2 ft. of elevation.

(4) Let one large square right and left equal 100 ft. from stake to stake.

(5) Number the stakes along the datum plane as shown in figure.

(6) At each stake make a dot the proper distance above the datum plane, showing the elevation of that stake, e.g., at stake 0 in the figure a dot is made 10 ft. i. e., 5 squares, above the datum; at stake 100 a dot is made 10 ft. 9 ins. i.e., 5¾ squares above the datum; at stake 200 a dot is made 12 ft. above the datum; and so on, the proper elevation of each stake being marked.

(7) Join all these dots by a line. This line gives the shape of the ground surface from stake 0 to stake 800, showing at a glance just where the fall is slow or rapid.

(8) At stakes 0 and 800 make dots 3 ft. below the surface, indicating a trial depth for the ditch at those points. Then lay a ruler on the paper and draw a line connecting these two dots—see dotted line in figure. This line will show where the ditch bottom would run if the ditch were dug at uniform grade and made 3 ft. deep at both ends. By counting the number of spaces between this dotted line and the ground surface at any point, the depth of the ditch at that point can be learned. Applying this test we see that the ditch shown in the figure would be 4 ft. deep or more throughout most of its length, and that it would be 5 ft. or more for over half its length, in some places being 5½ ft. Hence we conclude that it is not advisable to dig this ditch 3 ft. deep at both ends and of uniform grade, if it can be avoided—there is too much digging.

Whether it can be avoided or not depends upon the amount of fall from stake 800 to stake 0. The fall is 4 ft., which is equivalent to a grade of 6 ins. in 100 ft. Now this is much steeper than is absolutely essential for effective drainage. The minimum grade for safety is about 2 ins. in 100 ft. A drain to be safe must have grade enough to give the water a velocity sufficient to move any sand that may enter at the joints of the tile. Two inches in 100 ft. will give that velocity and a little to spare. Many tile drains laid on slower grades than this have done and are doing good service, but where there is any possibility of coarse sand entering the tile, they are within the danger zone.

Then, coming back to our problem, we see that we have plenty of fall, hence we can dig the upper section of the drain to a slow grade, and the lower section to a steep grade. Choosing depths of 2 ft. 6 ins. at stake 800, 3 ft. at stake 300 and 3 ft. at stake 0 and joining the dots made at these depths, we obtain a new ditch bottom with a change of grade at stake 300, the grade of the upper section being 2 2/5 ins. in 100 ft. and of the lower section 14 ins. in 100 ft. This is a much more desirable bottom than that shown by the dotted line, the deepest digging being a shade less than 4 ft. and the shallowest 2 ft. 6 ins. The average saving in digging by using bottom No. II rather than No. I, would be almost 1 ft. throughout the entire length of the drain. A similar profile may be made for any drain, once the elevations at the different stakes are known. There is one critical point in each drain, viz; the outlet knolls and basins where they occur are also critical points—we must take care to choose grades that will not require us to go too deep in the knolls nor too shallow in the basins. When striking the grades we consider first the critical points—the others will look after themselves.

(9) To determine the grade on a section of drain when the depth is different at the two ends of the section, we proceed as follows: Subtract the elevation of the ground surface at the two ends (this gives the fall on the surface), and then add or subtract the difference in depth, according to which end is the deeper. For example, the upper section of the drain in Fig. 3: 14 minus 13 ft. 6 ins. equals 6 ins.; hence in the ground surface there is a fall of 6 ins; but the drain is 6 ins. deeper at stake 300 than at the upper end; hence the fall in the ditch bottom is 6 plus 6, which equals 12 ins. in 500 ft; hence the fall per 100 ft. equals 12 ins. divided by 5, which equals 2 2/5 ins.

### Use of Plow in Digging Drain

When the drain has been staked out and the grade determined, one is ready to begin digging. Experience has shown that in the earlier stages the plow can be used to great advantage. Perhaps the most effective method is somewhat as follows:

(1) Using an ordinary plow, open up the drain as wide as possible, throwing one furrow each way. In stubble, fallow or plowed ground these furrows will not need shoveling, as they will be thrown well out; in sod they may need rolling farther back.

(2) Using an ordinary plow, again plow two furrows, one each way, in the bottom of the ditch already formed, throwing each furrow toward the center of the ditch. The second one will turn the first back partly, but this serves only to loosen the soil more thoroughly. The sides of the ditch, which were very sloping after the first plowing, have been trimmed off perpendicular and straight by the land-slide in the second plowing, which is now ready to shovel out; and it will be found in prime condition.

The ditch at the present stage should be about 18 ins. wide. It may be objected that this causes needless shoveling, to which I answer that the plow is to be used till the ditch is 2½ ft. deep, and it is necessary to have the top wide enough to accommodate the handles. The bottom will not be any wider than necessary.

This operation should be repeated till the ditch is about 15 or 18 ins. deep. In order that the horses may walk comfortably, one on each side of the ditch, the lines are opened up as wide as possible and a long doubletree used. To permit the plow to go deep enough in the ground, a chain about 6 or 8 ft. long is put in between the beam and the doubletree. This plow will not be found satisfactory after a depth of 15 or 18 ins. is reached, as the drain gradually becomes narrower.

(3) Now using a drainage plow of some sort, plow right down the center of the drain, and come back in the same furrow. This forms a narrow ditch in the bottom, both sides of which are trimmed straight and perpendicular. With a narrow shovel this furrow may now be removed. This operation is repeated again and again until the drain is almost as deep as required.

For this third operation a plow must be fitted up specially—we want something to dig a narrower trench than heretofore. Take an ordinary narrow plow and remove the mold-board. This of course removes the attachment for the lower end of the right handle, but bolt a narrow block between the handles and run a brace from it to the back bolt in the beam, and the handle is as steady and as firm as ever. Put on a new narrow point. If one has much draining to do, it is advised to make further and permanent alterations in the plow used for this third operation. The rod between the handles should be taken out, shortened, and replaced, thus bringing the handles closer together. The top section of the ditch need not then be so wide as before. It is also wise to shorten somewhat the braces that run from the head to the handles, thus raising the latter. The wide section of the ditch need not be so deep as before.

An ordinary subsoil plow serves very nicely, too, for this third operation, but the best thing I have seen for it is the "pick or pavement plow" manufactured by the Verity Plow Co., of Brantford. In hard ground the home-made drainage plow is very hard to control when the ditch becomes deep—sometimes it goes too deep, at other times, because of its lightness, it skims along the surface, doing no good. The subsoil plow, too, has these defects, and besides it is not strong enough in very heavy soil. I have seen a subsoil plow twisted so out of shape as to be useless for any purpose, and that simply because of the stiffness of the soil and uncontrollability of the plow. The pick plow has none of these defects—it is heavy, and therefore strong enough for all purposes, rides steadily at a uniform depth, and is easily held. Because of its weight it is somewhat cumbersome in turning at the end, but it performs its work so effectively that this slight drawback may be overlooked. This plow is not made primarily for drainage work, but for tearing up pavement, old roads, etc., hence the handles as in an ordinary plow are too low and too wide. But they can be raised and narrowed as described above—which was actually done on the particular pick plow which I saw used for drainage purposes.

This method of digging a ditch is not given as original, but as one that has been tried and has been proven eminently satisfactory. Men of wide experience, who have used various methods, and who have discarded others in favor of this one, assure me that this is the most economical they have tried.

### Grading the Ditch.

Having determined the grade and dug the ditch within a few inches of its final depth, the next operation is to remove the remaining earth, leaving the ditch bottom with an even fall throughout. The accompanying drawing (Fig. 4) will aid in understanding the method to be described:

Two cross-heads are set up 100 ft. apart, one at stake 0 and the other at stake 100, as shown in Fig. 4. Both are put 6 ft. 6 ins. above the ditch bottom, the latter thus being higher than the former by the amount of fall in 100 ft. e.g., if the fall is 14 ins. in 100 ft. then cross-head 100 is set just 14 ins. higher than cross-head 0. The stakes must be stout and driven firm in the ground. A light cord—binder twine does very well—is then stretched tight and tied over the cross-pieces, so that the sag is negligible. Since one end is 14 ins. higher than the other, this cord has the same fall as the ditch bottom is to have, and hence if the latter is made parallel to the cord it will have the required fall. It is necessary to provide a light testing stick 6 ft. 6 ins. long, since the cord is 6 ft. 6 ins. above the ditch bottom. With a narrow shovel the earth is gradually removed until the stick standing on the bottom just passes under the line. When such is the case the ditch is deep enough at that point. When every point between stakes 0 and 100 just tests 6 ft. 6 ins. from the overhead line, the grade of this section is uniformly 14 ins. in 100 ft. Any other grade is arrived at in a similar way.

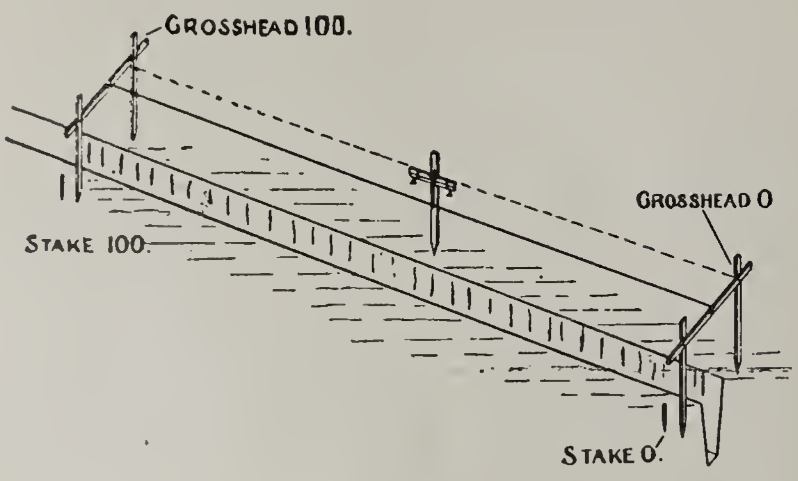


Fig 4.

But how shall we place the cross-heads 6 ft. 6 ins. above the ditch bottom?

First. We must determine the depth of the ditch at the outlet. A drain usually empties into another tile drain or into an open ditch, the depth of either of which may be determined by using the drainage level and the measuring staff as follows: Set up the level as previously directed and sight over it at the staff, which is placed first on the surface of the ground, and second on the bottom of the main drain or of the open drain. Subtracting the readings, we have the depth of the ditch at the outlet. Suppose for illustration that it is 3 ft. 5 ins.

Second. We must determine the height the cross-piece is to be placed above the ground. This is done by subtracting the depth of the ditch from the length of the testing stick, i.e., if the ditch is 3 ft. 5 ins. deep, as supposed above, then cross-head 0 would be 6 ft. 6 ins. minus 3 ft. 5 ins. = 3 ft. 1 in. above ground. One end of the cross-piece is clamped to one of the stout stakes at this height (3 ft. 1 in.), the cross-piece is then leveled by means of the carpenter's level, and the other end clamped to the other stake.

Third. We must find a point on stake 100 just the same height as the top of cross-head 0. To do this the drainage level is set up about half way between stakes 0 and 100. The level is moved up or down on the standard until when adjusted it is found by sighting (see dotted line) to be just on a level with the top of cross-head 0. Then by sighting towards stake 100, as shown by dotted line, a point is found which is also on same level as the top of cross-head 0. This end of cross-head 100 is clamped just 14 ins. higher than the point shown by dotted line, the cross-head leveled, and the other end clamped. Cross-head 100 is thus exactly 14 ins. higher than cross-head 0.

Why have the over-head line 6 ft. 6 ins. above? Six feet is not enough to clear the man and his shovel. Seven feet would be more than is necessary. For any other grade than 14 ins. in 100 ft. cross-head 100 is clamped the corresponding amount higher than the dotted line. When the first section has been graded, and while the line is still strung, it is wise to lay the tile so that they may be tested to grade by the same line, a notch being cut in the testing stick at a distance from the end equal to the outside diameter of the tile. When the line just meets this notch the tile is in proper grade. After the laying has been finished cross-head 0 is moved to stake 200 and set the required amount higher than cross-head 100 and this section of the drain graded as was the first section.

In practice it is found convenient not to tie the line to the cross-pieces, but to simply pass it over them and tie a stone to it. This keeps the line always at the same tension and takes up any stretch that may occur. As the line sags some on a 100 ft. section, it is usually found best to interpose one or two light cross-heads between the end ones. They can be sighted in position by those at the end.

There are numerous devices for aiding in digging a ditch to the required grade, but the overhead line here described is the best I have seen. I know quite a number of practical ditchers who have abandoned others in its favor, but none who have abandoned it for others.

It is not wise to allow the digging to get too far ahead of the laying, as rain is liable to occur at any time, causing the sides to cave in in spots and in other ways interfering with the finished bottom. The joints of large tile should be protected to prevent sediment entering the tile while the earth is becoming set. Sods placed with the grass next the tile are excellent for this purpose. Tar paper also is good. When the drain has been filled a ridge should be plowed over it in a well-rounded crown from 8 to 12 ins. higher than the land on either side and to a width of 8 or 10 ft., otherwise large quantities of water are likely to collect over the drain and soak down through the loose soil, sometimes choking the tile with sediment, at other times gradually forming a channel beside the tile, washing the soil away and allowing one or two lengths to roll out of line and thus partially or wholly block the drain.

### What Size of Tile to Use.

In every drainage problem we are confronted with the question, "What size of tile shall we use?" a question that cannot be answered off-hand. The amount of water that will flow through a pipe depends upon three factors—the size, the roughness and the slope; so when we are asked what size of tile to use in a given case we must determine first the area to be drained, and secondly the slope—the roughness is a constant factor and already known. The acreage that various sizes of tile are capable of draining on various slopes has been carefully worked by McConnell, and his table is subjoined.

Suppose a man has 12 acres to drain and the slope of his main is 1 ft. in 600, then we look down the list of falls till we find 1 ft. in 600 and follow this line to the right. A 3 in. tile would not do; it drains only 3.3 acres. A 4 in. tile drains only 4.7 acres. A 5 in. tile, not given, but probably drains about 7 to 9 acres. A 6 in. tile fills the bill, as it is capable of draining 13.3 acres. The size to use for any other slope is determined in the same way. This rule applies to the submains and laterals as well as to mains. Owing to the great amount of friction in small tile compared with the volume of water they can carry, they are much more likely to clog with sediment than are the larger ones, so much so indeed that a 2 in. tile should never be used except on a steep grade. They are almost sure to clog in time on a slow grade.

### Depth and Distance Apart.

A mistake that beginners often make is that of putting their drains too shallow. This arises from not understanding fully the action and function of the drain. To begin with, why is it necessary to drain? Because the roots of plants cannot live and thrive in soil containing excessive water. This being so, we must next ask how deep do the roots naturally go in the soil where the conditions as to drainage are perfect? If they go 6 ins. only, then it is sufficient to drain our soil on the surface alone. If they go 3 ft. deep, then for best results we must drain 3 ft. deep. But, again, how deep do they go? This varies somewhat with the crop, but the roots of corn, winter wheat, oats, barley and clover, some of our staple crops, penetrate at least from 3 to 4 ft. average field conditions. Then how deep should we drain? From 3 to 4 ft. in order that the roots of these crops may have full opportunity to penetrate the soil. It may be suggested that 2 ft. would be sufficient for the early needs of the crop and that as the season advanced the water would naturally recede farther below, thus giving the roots plenty of space. This argument would have some weight but for one fact: the "water-table" in drained land is not level, but curved. If, in a field that is underdrained, one were to dig a series of holes 4 ft. deep every 10 ft. between two drains, and if after a heavy rain he were to observe the water in the holes for a day or two, he would find that in a very short time no water remained in the hole at either drain, but the one situated midway between the drains would stand full for a long time, and the others would have less and less in them as he approached the drains, thus showing that the water-table is a curved surface, beginning at either drain and rising between. How fast does it rise? That varies with the soil and with the time since rain. In a clay in fairly good condition, when flow in drains begins to lessen, it will be found that the water rises 1 ft. in about 25; in loam, 1 ft. in 33; in lighter soils the rise will be slower still. The closer the drains are together the less the height of the crest of the water-table above the drains; the farther apart, the higher the crest; hence the closer the drains are together the shallower they may be; the farther they are apart, the deeper they must be. The depth and distance apart must be so chosen that midway between the drains the soil will be drained 1½ or 2 ft. within 48 hours after rain, for if the roots are submerged longer than this, they begin to suffer. Applying the gradients of 1 ft. in 25 for clay and 1 ft. in 33 for loam, we arrive at the general conclusion that if drains are from 3 to 3½ ft. deep, they should be placed from 50 to 66 ft. apart in clay or clay loam, and from 75 to 100 ft. apart in lighter soils. But this is only a general conclusion, and judgment must be used in each individual case.

**Table of Size of Tile Pipe of Main Drain (McConnell).**

| FALL. | ACRES DRAINED. | | | | | |
|---|---|---|---|---|---|---|
| | 3-inch tile | 4-inch tile. | 6-inch tile. | 8-inch tile. | 10-inch tile. | 12-inch tile |
| 1 foot in 20 | 18.6 | 26.8 | 74.4 | 150.0 | 270.0 | 426.0 |
| 1 " 30 | 15.1 | 21.8 | 60.4 | 128.0 | 220.8 | 346.0 |
| 1 " 40 | 12.9 | 18.6 | 51.6 | 108.8 | 189.6 | 298.4 |
| 1 " 50 | 11.9 | 17.0 | 47.7 | 98.0 | 170.4 | 269.0 |
| 1 " 60 | 10.9 | 15.6 | 43.4 | 90.0 | 156.0 | 246.0 |
| 1 " 70 | 10.0 | 14.5 | 39.9 | 83.0 | 144.4 | 228.1 |
| 1 " 80 | 9.3 | 13.4 | 37.2 | 77.0 | 135.0 | 213.0 |
| 1 " 90 | 8.1 | 12.6 | 35.0 | 72.5 | 127.0 | 200.5 |
| 1 " 100 | 7.3 | 11.9 | 33.1 | 69.2 | 120.6 | 190.5 |
| 1 " 150 | 6.7 | 9.5 | 26.6 | 56.0 | 97.3 | 154.4 |
| 1 " 200 | 5.7 | 8.2 | 22.8 | 48.0 | 83.9 | 132.5 |
| 1 " 250 | 8.1 | 7.5 | 20.4 | 42.4 | 74.4 | 117.0 |
| 1 " 300 | 4.6 | 6.9 | 18.4 | 38.2 | 65.5 | 107.0 |
| 1 " 400 | 4.1 | 5.9 | 16.5 | 32.6 | 60.3 | 90.7 |
| 1 " 500 | 3.7 | 5.2 | 14.8 | 30.1 | 54.0 | 81.6 |
| 1 " 600 | 3.3 | 4.7 | 13.3 | 28.0 | 48.6 | 74.0 |
| 1 " 800 | 2.9 | 4.1 | 11.4 | 24.0 | 41.9 | 65.0 |
| 1 " 1000 | 2.6 | 3.7 | 10.2 | 21.2 | 37.2 | 56.0 |
| 1 " 1500 | 2.1 | 3.0 | 8.5 | 16.8 | 30.8 | 47.0 |
| 1 " 2000 | 1.9 | 2.8 | 7.4 | 15.0 | 25.0 | 40.8 |

### Cost of Drainage.

The cost of drainage varies with the conditions. With convenient outlet, clean soil, in the early summer while the earth is still soft, drains can be put in at from 30 to 40 cents a rod, tile included, but later in the summer or in digging that is difficult from the nature of the soil, they may cost anywhere from 50 to 75 cents. Practical ditchers sometimes charge even more than this, but these estimates are based on operations of which we have actual knowledge. We know of one 10 acre field being drained 4 rods apart at a total cost of $14.50 an acre. Previous to this it was the wettest field on the farm, was never sown earlier than June, never gave more than a half crop, and often not that, and would grow only timothy and oats. Since being drained it is the second driest field on the farm, has never but once been sowed later than April, always gives a full crop, and will grow successfully anything that can be grown on the high land of the farm. It is a pleasure to work the field now. If the reader will just figure out the difference in value between a half crop of oats or timothy and a full crop of wheat or other grain, he will find that those drains were not long in paying for themselves. This drainage was done 12 or 15 years ago when labor was cheaper than now, but on the other hand the drains were put closer together than most soils demand. Perhaps $17 to $20 per acre would fairly represent the cost in average conditions at the present time.

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## TO KEEP OUT THE BACK WATER.

A farmer in Iowa had some difficulty in keeping the back water from entering the tile where the tile went through a dyke and emptied into a river. Whenever the river was high, the water backed up into the drain.

The accompanying sketch shows an excellent way by which this difficulty could be overcome, by means of a gate for the drainage outlet. A corrugated culvert pipe is used for the outlet.

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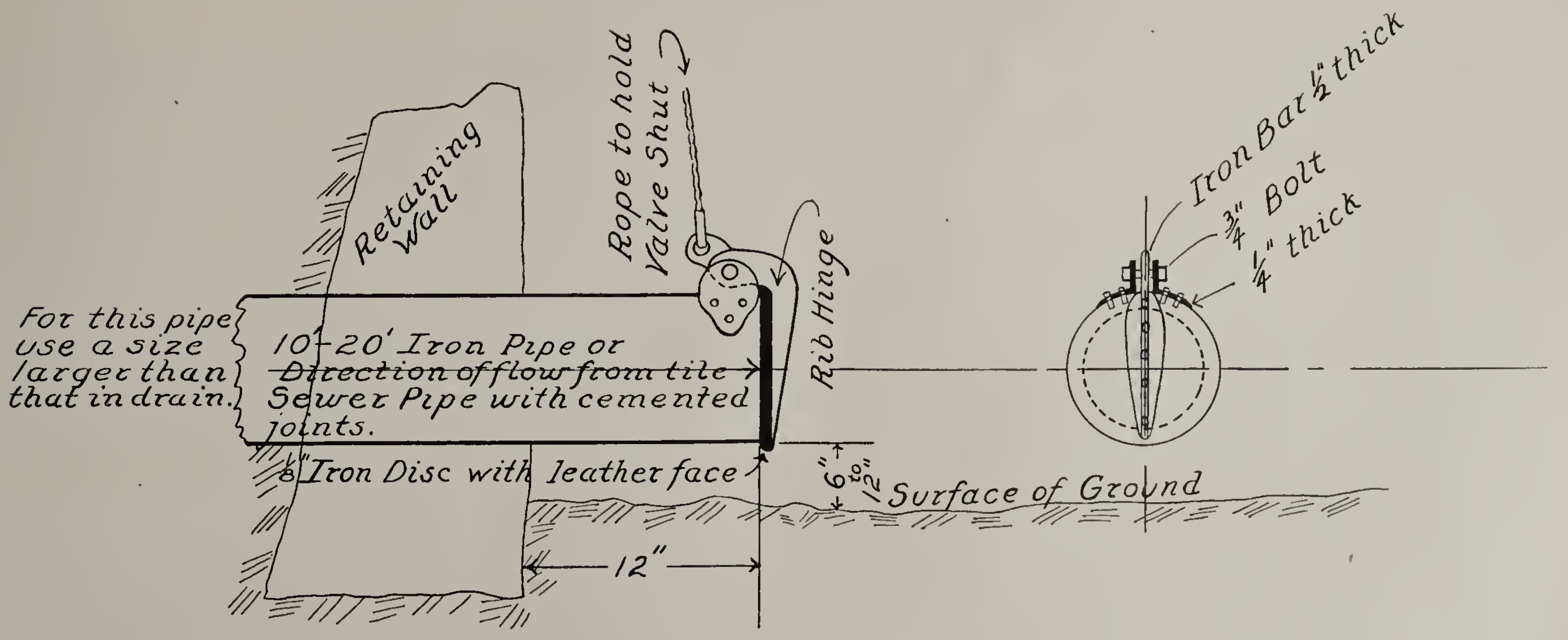
## LARGE OUTPUT.

The tile factory at Arthur, Ill., owned by representative Jno. F. Martin, had an exceedingly prosperous year during 1909, making a half million tile. Almost the entire quantity was sold at the yards and hauled in wagons to the nearby farms.


Retaining Wall
Rope to hold Valve Shut
Rib Hinge
Iron Bar ½" thick
¾" Bolt
¼" thick
For this pipe use a size larger than that in drain.
10'-20' Iron Pipe or Sewer Pipe with cemented joints.
Direction of flow from tile
⅜" Iron Disc with leather face
6"
Surface of Ground
12"

Suggestion for Gate for Drainage Outlet.

# SEWER PIPE NEWS

## CONDITIONS IN OHIO.

Our Ohio correspondent informs us that considerable activity is noticeable in the sewer pipe trade in Ohio. The opinion is gaining ground that there is "something doing" in sewer pipe circles, but just what it is, no one appears to be able to tell. Over a month ago rumor was current that a number of idle plants would be placed in active operation at an early date, and that the business of the trade would be on a firmer basis than experienced for several years. This story caused some tall thinking on the part of those on the outside.

Independent sewer pipe manufacturers declare upon oath they do not know of any inside movement of any character, but nevertheless something appears to be in the air, which will come out in due form sooner or later.

For over a fortnight there has been an unusually heavy demand for stock of the American Sewer Pipe Co., of which at one time large blocks were held in Columbus. The price, which had been dull around 12, began to advance, and last week it advanced to 17, later dropping back to about 14½.

There have been such flashes of the stock in the past, but the present advance has been much longer sustained and the buying has been better than any of those preceding. Neither Cleveland nor Pittsburg, where the stock is also dealt in, has any news regarding it. It is certain that the advance is not predicated on earnings, as the report for last year, announced a few days ago, showed earnings at the rate of less than 1 per cent on the stock.

There are rumors of a further combination of plants, several Ohio plants being mentioned, but nothing definite is known in regard to any pending deals. In the meanwhile there has been a heavy accumulation of the stock going on, and Columbus men who should know something of the affairs of the company have been large buyers. It is said that the floating supply of the stock is practically cleaned up, and some kind of an announcement may be expected soon.

T. D. Brown, formerly of Beaver, Pa., has removed to Haydenville, O., where he has assumed the management of a sewer pipe plant.

## UNITED EFFORT NEEDED.

A prominent manufacturer of sewer pipe at Philadelphia writes of conditions in the industry, as follows:

"Before the article headed 'Boost the Price' was published in your April number of 'Brick and Clay Record,' there was a meeting of the sewer pipe and flue lining manufacturers held in New York City on March 23rd, where they adopted schedule No. 7 of discounts.

If this schedule is carried out by the manufacturers and their agents, there will be a profit resulting from the advance, but it seems to be understood and generally carried out, that previous to these meetings all the parties which should be interested and benefited by the advance in discount have orders placed with them for their entire output for future delivery at the old prices. If all these orders are shipped at the old prices, the new schedule would be of no benefit whatever to the manufacturers, and even at this time their agents are quoting prices on the old basis of discounts.

Now of what use is the new schedule of discounts to the trade in general—nobody will be benefited. What should be done, and can be done, is when the manufacturers hold meetings and arrange the prices for their products, everybody should be notified that no orders would be accepted at the old prices, unless they were advised by the contractors that they had used the old prices on certain work, giving them the quantities which would be used should they receive the contract. No orders should be accepted otherwise, unless figured on the new prices, and then the manufacturers who could supply the demand and give prompt delivery would be the ones to receive the orders.

The outlook for this season's business is very encouraging, and if all the work contemplated is done, it will be the greatest season ever known in the sewer pipe business as there will be a great demand for this product all over the United States.

## LIKE A GREEN BAY TREE.

C. B. Stahl, secretary of the Whitehall, Ill., Sewer Pipe and Stoneware Co., says their shipments on pipe, tile, etc., for March 1911, were the largest of any March in their history. The sales in one month now amount to almost as much as an entire year, back in the '80s and early '90s.

Ernest Morrow has been promoted to superintendent of yards in the sewer pipe department.

## READY FOR BUSINESS.

The Shawmut Clay Manufacturing Co., at Drummond, Pa., has started operations, after an idleness of several weeks, during which time extensive repairs and improvements were made. Over 100 men are at work. The firm is a large manufacturer of sewer pipe. The plant is under the active management of Mr. Stacy E. Tuttle, and the production is sold mainly through the New York office of the company.

## PENNSYLVANIA SANITARY MEASURES.

Sanitary sewer systems constructed along lines approved by the Pennsylvania state board of health are in demand. Many small towns in Pennsylvania plan to make use of this system this spring. This means an increased demand in sewer pipe and other clay products. The latest towns to present their plans before the state authorities are Carrick, Mt. Oliver, and St. Clair. Carrick has 27½ miles of sewers and other towns about two-thirds as many. Each borough is to have two sets of sewers, one for storm water and the second for sewage. Some little time ago Craftonborough authorized the construction of an approved sewer system.

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An order for fifty cars of sewer pipe from Moline is one of the reasons for industry at the old Purington yard No. 3, which has been leased by the Monmouth Mining & Manufacturing Co., of Monmouth. The three-M company was forced to secure more facilities than the Monmouth plant afforded.

# POTTERY NEWS

## EAST LIVERPOOL ITEMS.

Construction upon the new nine-kiln plant for Fred Sebring at Sebring, O., is progressing rapidly, and the foundation will be completed within a few weeks.

Stoneware pottery manufacturers in the Crooksville (O.) district have gone together and increased the selling lists of their ware, the contention being that the move was absolutely necessary because of the increased cost in raw materials and fuel. The claim is also made that the cost of labor has also materially increased during the last year. The new selling lists were effective April 1.

The National Brotherhood of Operative Potters, which is the union organization of the pottery workers of the United States, has appointed a special committee, the duty of which is to devise ways and means for the organizing of the fire clay workers in the eastern clay centers. No general meeting has been held so far, it is said, and the task will prove a harder one than anticipated, so it is said.

B. C. Simms, general manager of the Thompson Pottery Co., at East Liverpool, has been named by the Probate Court to fill the vacancy on the Soldier's Relief Committee of Columbiana county.

Lovers of fine pottery find much to admire in a vase which has just recently been produced by R. Guy Cowan, director in charge of the Cleveland (O.) Technical High Schools. This vase, which is now being exhibited, is creating much favorable comment upon the character of work being done by the students of the ceramic department. It also proves that through technical education, the industry can be lifted to a high plane.

This vase has an almost perfect iridescent crystallizing glaze, which is an effect not heretofore produced upon domestic pottery. A series of experiments in glazes has been conducted for several months by Mr. Cowan in an effort to produce a perfect iridescent glaze.

Such a glaze was produced in Boston last year, so it is said, but at the Cleveland Technical schools those in charge of the ceramic department were able to go further and obtain the crystalline at the same time. Other pieces possessing a similar glaze are now in process of manufacture.

The Federal Government has just issued some very interesting statistics, which show that more domestic pottery is being made now than ever before, and this decision is arrived at by noting the falling off in the value of the importations of this class of ware.

That more domestic pottery is being sold now than ever before is evidenced by the falling off in the volume of imports for the last eight months ending February 28, when compared with the same term last year. For eight months, of the fiscal year, the importations amounted to $7,968,449 and for eight months last year the importations totaled $7,496,866. The increase for the last month is $471,583, but the increase for the eight months in 1910 over 1909 was $919,307. In other words, the importations for eight months during the fiscal year of 1909 were nearly $1,000,000 more than recorded for the corresponding eight months of the last term.

Importations for February last totaled $688,848, as against $542,809 for February, 1910. This shows an increase of $146,039 in favor of 1911. There was a falling off in the imports from the United Kingdom, the value in 1910 being $165,340 and for 1911, $164,905, a decrease of only $435. Nearly $100,000 worth of ware was imported from Germany in February last, over February of 1910, the record being for 1910, $188,543, and for 1911, $279,495.

For eight months, in 1911, the exports of domestic china amounted to $82,000 and for earthen and stoneware $716,468. For the same term in 1910, the exports totaled for china $69,288 and for earthen and stoneware $541,943. For February last, the exports of china totaled $6,873 as against $5,120 for 1910, and for earthen and stoneware for February the exports totaled $72,463 as against $56,784 for February, 1910.

A six-kiln pottery will be operated at Bridesburg, near Philadelphia, Pa., by the Yellow Yock Pottery Co., of Philadelphia, Pa. The former plant of this concern was destroyed by fire several months ago, and plans were laid at once for the erection of new works, which are nearing completion.

Guy H. Crooks, of Ravenswood, W. Va., is in the market for some pottery machinery, according to report just received here. It is said he contemplates erecting a stoneware pottery.

The Commercial Club of Terre Haute, Ind., has announced that contracts have been closed with W. H. Glover of Sebring, O., for the erection of a new pottery in the Indiana city. The kiln capacity of the plant is not announced, nor is the name of the architects of the new property given out. Should this pottery be built in Terre Haute, it will be the only domestic pottery in that part of the Hoosier State and is assured of a steady business from the start.

A new pottery is to be established at Bristol, Pa., by a Trenton, N. J., pottery concern during the present year, according to unofficial report now current.

John Stamm, for many years part owner and general manager of the plant of the National China Co., in this city, and whose business was transferred to Salineville, O., early in the year, has resigned his position, and has been succeeded by his son.

Many improvements are being made at the plant of the Warwick China Co., Wheeling, W. Va., where the firm will soon begin to make a vitreous china dinner and hotel ware body. Special machinery for this grade of ware is being installed.

As was anticipated, Charles E. Jackson has been selected president and general manager of the Warwick China Co., succeeding Thomas Carr, who, by the way, has been in working harness for a little over two-score years.

"It's time I was taking a little vacation and I believe this is the year to do it," said Mr. Carr recently. It is well known that the Warwick plans a change in its product—a step forward in the manufacturing of American pottery, and these changes are under the direction of Mr. Jackson, who "has made good" in the production of a high grade china body. Mr. Jackson is also one of the first graduates of the Ohio State School of Ceramics at Columbus.

Daniel Churton, for many years a well-known pottery superintendent at East Palestine, O., has left for Huntington, W. Va., where he will become superintendent of the plant of the Huntington China Co.

Additional kilns and an annex to the decorating department of the Taylor, Smith & Taylor Pottery Co.'s plant at Chester, W. Va., are nearing completion.

# SAND LIME DEPARTMENT

## THE CHURCH BRICK CO.

One of the early establishments to engage in the manufacture of sand lime brick, in Michigan, was the Sibley Brick Co., which commenced operations in 1904.

Until recently this company, like many other sand lime brick companies had some difficulty in introducing its products, mainly on account of the ban placed by the insurance companies on the use of sand lime products. Because of the strong financial interests back of this company, however, it was able to overcome the difficulties which it encountered.

The company has formerly manufactured both plain and colored brick, and has also made what is termed "face" as well as "mill run" brick. The business of the company picked up considerably in 1909, and in 1910 it was so brisk in the mill run brick that the company decided to discontinue the manufacture of face and colored brick and devote its entire attention to the common or mill run brick. In fact, the business was so great in this line last year that it was found necessary to more than double the capacity of the plant.

Formerly the plant was operated with double shifts, but later, with scarcely any interruptions to manufacturing operations, new machinery was installed, increasing the capacity of the plant to 60,000 brick per day.

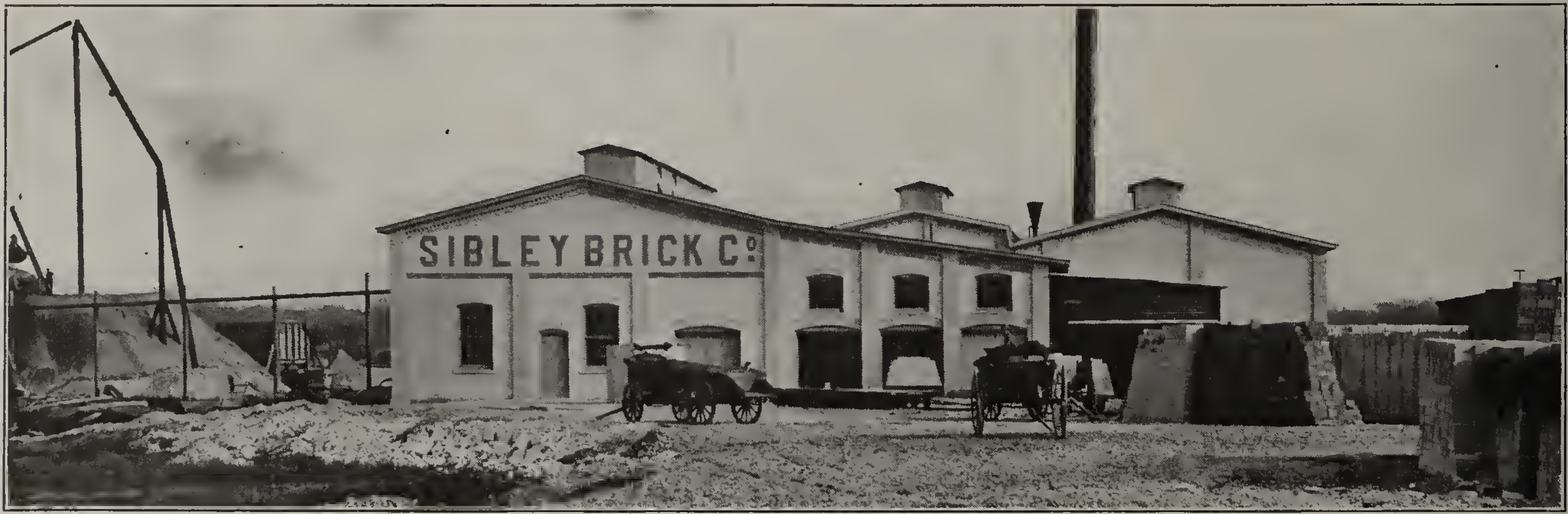
The company having water frontage enjoys excellent shipping facilities and is able to obtain the necessary sand by the boat load. Its railroad shipping facilities are also of the best, and it enjoys an extensive trade not only in Detroit, which is but 15 miles distant, but also within a radius of 60 miles around Detroit.

With the development of Detroit as a motor car manufacturing and selling center, the use of sand lime brick has grown extensively in the construction of automobile factory buildings and for the building of garages; if not used throughout the walls of such buildings the "Sibley brick" are usually to be found as linings for the interior walls—the color being a light grey and quite uniform. makes them very desirable, doing away with the use of white-wash or other painting of interior walls.

Recently the name of the company was changed from the Sibley Brick Co. to conform with the ownership, instead of the name of the town,. the new name being the Church Brick Co., and the officers are: E. D. Church, president; C T. Church, vice-president; Austin Church, secretary and treasurer, and H. G. Field, manager.

The product manufactured by this company will continue to be known as "Sibley" sand lime brick, or as they are commonly known to the trade, "Sibley" white brick.

J. H. Fry has been appointed to succeed J. Dean Rucker as sales representative for the Church Brick Co. The headquarters of the company are at 520 Hammond Bldg., Detroit.



Plant of the Church Press Brick Co., where the "Sibley" Brick are Made.

## SAND LIME BREVITIES.

The Holland (Mich.) Pressed Brick Co. has been organized, and is now busy turning out sand lime brick at the rate of 30,000 a day. A ready market is found for the product, and a number of men are being given employment. P. D. Woodin, of New York, is in charge.

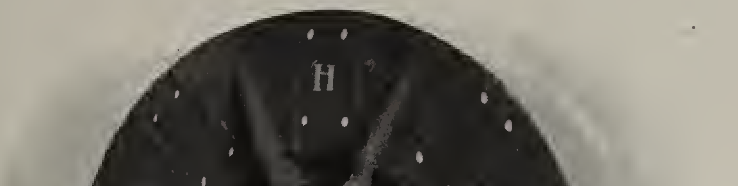
Extensive improvements have been made in the Bakersfield Sandstone Co.'s property at Bakersfield Cal., owing to the demands of a growing business. A warehouse and office building have been erected, and the company contemplates the erection of a garage, with the intention of using motor trucks for the delivery of brick, lime, cement and plaster.

The large manufacturing plant of the Colorado Brick & Artificial Stone Co., at Pike View, Colo., has passed into the hands of new owners and will be known in the future as the Colorado Press Brick Co. Many improvements have been added, making the factory complete for the manufacture of high grade sand lime brick which are popular in that locality for residences and other structures. The company intends to make various shades to meet the popular demand including buff, pink and dark brown.

## IMPROVED PAN STEP.

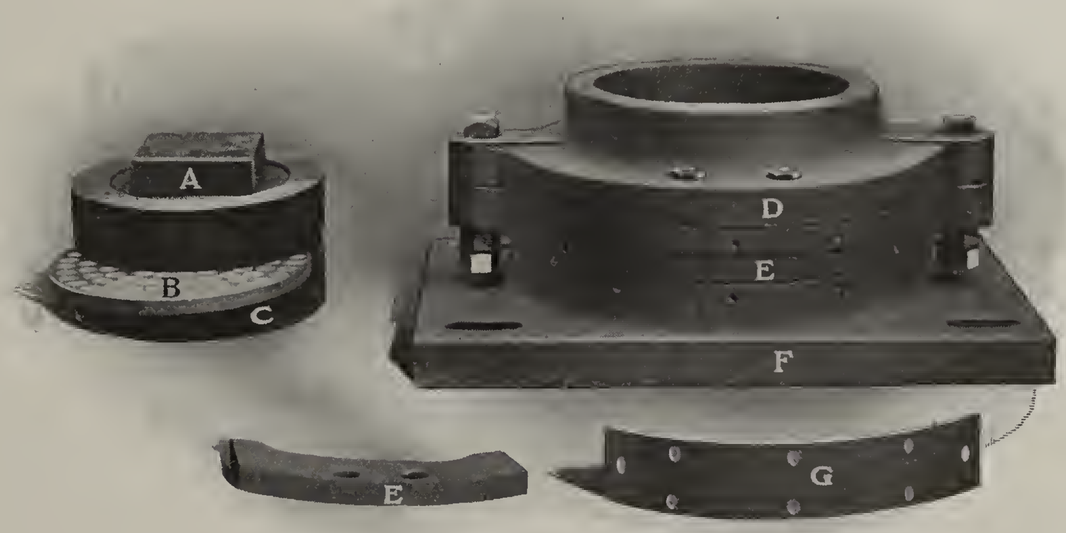
The American Clay Machinery Co. are introducing some new machinery features; one of the newest is the improved pan step described below.

The accompanying cuts illustrate the underside of their pan "base," also stub-end of shaft and different parts of their standard step. "H" is the grinding base of pan which has a deep recess bored in the bottom to receive the large end of the stub "I," which is turned and faced to fit the recess. The large flange of "I" has four slots, as shown, which correspond with four slots in the bottom of base to admit four large bolts to hold the "stub" in position and affords quick means for removing the bolts when it is necessary to remove the stub. In the illustration, "I" is shown bolted to "H." "I" is also shown separate. The hammered steel vertical shaft enters the base "H" from the upper side, the end resting on the stub "I," and is securely keyed to the base "H." The small end of this stub is turned and faced. In the bottom is a square socket which fits over the square projection on the upper chilled disc "A." The upper surface of "A" is faced off so as to form a true bearing for the lower end of the stub "I" to rest on. The lower surface of chilled disc "A" is chilled and ground perfectly true. This surface rests on the upper surface of the bronze disc "B." The square projection of "A" fitting into the square socket of the stub causes "A" to revolve with the pan base "H." Both sides of the bronze disc "B" are faced true and scraped to a uniform thickness. The lower surface of the bronze disc rests on the upper ground surface of the lower chilled disc "C." This disc is made of the same material as disc "A"; both have oil channels cast in the faces to insure oil passing between the surface of the discs and the bronze discs. The lower disc is provided with a square projection on the under side similar to the one shown on "A." This projection fits loosely in a square socket cast in the bottom of the step casting "F." This prevents the chilled disc "C" from turning. The bottom surface of the square projection of "C" is rounded and rests on the flat bottom of the base casting "F." This permits the chilled disc "C" to rock or equalize itself so that the entire rubbing surface of the different discs rests on their entire contact surface.



Parts of Pan Step.

Bolted to "F" is a wearing collar "D." The joint between these is faced off smooth and made male and female so as to hold "D" in a central position. The hole in the collar "F" is bored to fit the small end of the stub "I" and keeps the pan base "H" and vertical steel shaft in alignment. When this collar "D" wears it can be renewed. In the side of the base plate "F" is cast a slot cutting through from the outside to the cavity which holds the discs. Inserted in this slot is a filler "E." This filler "E" holds the bronze disc in a central position. This filler is so located that by moving it the bronze disc "C" can be removed without disturbing the other portions of the step except the cover "G," which is bolted with cap screws to the side of the base "F." The design of the step is such that the discs run in a bath of oil, which is fed into the step by a pipe leading from the collar "D" to the outside of the pan frame or leg. There is a hole drilled in the side of the base plate "F" and closed with a pipe plug, which plug can be removed and by running water through the oil pipe the step can be washed clean.



Parts of Pan Step.

When it is necessary to remove the bronze disc, base "H" is simply raised with jack screws to relieve the weight from the disc, which can then be removed and a new one inserted if necessary. The base of the step rests on wood blocks so arranged that they can be unbolted and removed, then the entire step will drop down sufficiently to permit the removal of all the parts of the step, including the step casting, without molesting any other part of the pan.

## NEW BOOK ON ENAMELS AND COLORS.

A work has just been published by Mr. Louis Franchet, and is a treatise on the manufacture of useful and decorative materials in ceramics, in which it indicates the technic of the constitution of enamels and paints.

The author describes mineral stones and mineral products entering into the composition of these enamels, with descriptions of the different kinds of decorating materials, defining clearly what one must understand exactly by gloss making, melting, glazing and varnishing-enamels and paints.

The work is entirely original and not a work of compilation. The price is $1.20, and may be had by addressing the Editor at 148 Magenta Bldg., Paris, France.

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The tile factory at Fort Madison, Ia., has been leased to a party from Des Moines, who will operate the plant.

The Alliance (O.) Brick Co. will ship a large order of paving block to Grand Rapids, Mich.

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### CHICAGO CONDITIONS.

Chicago, Ill., April 27.—There has been one serious drawback to the anticipated progress of the clay industry here, which does not now appear near settlement. This is the labor agitation. While the manufacturers of clay products and the dealers therein are not directly affected by any trouble, the strikes in other lines have tied up considerable work, and this has had a very bad effect on the situation. How it is to terminate no one can say now. It is to be sincerely hoped, however, that the end may not be far off.

To offset this there has been a very fair amount of work in the building line undertaken. In the outlying districts there are now under way stores, factories, apartments and residences in a rather large number. In the down town district a number of the larger structures have been tied up from time to time by strikes, and there has been only a limited amount of progress made on this account. There are a number of large structures to be started soon, and unless the labor agitation becomes more serious there should be a very fair showing made at the close of the year.

For the greater part the large and small buildings, too, are being erected with brick and other clay products. This is the one pleasing fact to the clay people, and demonstrates that Chicago is still adhering to her belief in clay building commodities. If we were to view the matter in a fair way it must be admitted that there has always been a decided advantage shown clay commodities here. The exceptions to this rule, considering all classes of structures, is very limited. So if there is an increase it is always in favor of the clay material.

The brick manufacturers have heard the request of the brick makers for an increase in the wage scale to take effect on May 1, but there has been no action taken with reference to the same as yet. While a compromise is possible, it may be that there will be no increase at all, and in such event there might be some trouble, or at least a walkout. However this may be it is presumed that there will be an amicable settlement to the affair as both sides realize the uselessness of any trouble in matters of this kind.

Preliminary preparations are under way for the Clay Products Show to be held here at the Coliseum next March. The committee is working with a will and there is every reason to believe that the show will prove one of the most beneficial advertisements that the clay manufacturers could receive at the hands of the public. There should be a most hearty co-operation on the part of every clay operator in the country, and to make it a real success this is essential.

The Illinois Brick Co. continues to enjoy a very nice demand for building brick. While the situation has not changed very materially there could be a trifle more activity to the industry. In view of the fact that there has been some decline in the number of building permits, the demand has shown just a trifle less activity.

The Thomas Moulding Co. reports the situation with them to be fair. There is no very strong demand for face brick, but there has been a steady business that has made the sales compare favorably with other years. They feel very well contented with the outlook and are counting on a continuation of good business.

The McRoy Clay Works are not as active as they might be in conduit and other clay lines now. While the plant is being operated the demand has been less active than they could have wished. This has been due in part to the labor situation, and the holding up of orders is traceable to a lack of desire on the part of many to proceed with work under the existing conditions.

The report comes from the office of the Midland Terra Cotta Co. that it will be operating its new plant within a few weeks. The equipment is being installed so that most of the details will be taken care of in a reasonable time and the wheels will be turning making architectural terra cotta.

The Alonzo Curtis Brick Co. finds that there has continued a very fair demand for building brick. While the situation is not flattering it is far from being depressing, and there has been no real cause for complaint on the part of the company. There is every indication now of a fair demand for the future, and this is the way the matter is viewed here.

The American Brick Handling Machine Co. has been incorporated here with a capital stock of $2,500. The incorporators are: Max Guthman, Jacob Rothschild and Martin Connor. The company will do a general manufacturing business.

The American Terra Cotta and Ceramic Co. has moved its offices from the Chamber of Commerce building to the People's Gas building, where the company has elegant quarters and will be enabled to take care of its growing business in a better manner. The reason for the move was due to the fact that business had so increased as to make larger quarters essential.

The Allis Brick Co. has about completed a number of repairs at its brick plant and will be in operation very soon. The common brick demand looks favorable to the company, but there has been no special change in the past few weeks.

The Wisconsin Lime and Cement Co. find the situation to be fair in face brick lines. There is no rush of business and the labor situation has undoubtedly had its effect in holding back orders that might have been looked for at this time.

### THE TWIN CITIES AND THE NORTHWEST.

Minneapolis, Minn., April 26.—Building is picking up steadily, as the spring advances, and the indications point to a more than fair building season. Minneapolis building permits for the first quarter of the year are well ahead of last year, and St. Paul permits are running very well, although they are not as yet showing up quite so heavily as in the same months of a year ago. Considerable new work of size is developing from time to time, and the prospects are quite good. The new work, especially for the larger buildings, is running rather freely to the reinforced concrete construction, for the reason that the work can be constructed cheaper. The friends of clay construction will have to overcome the scarcity of competent bricklayers, and the dominations of the unions, if they expect to have a fair show in competition

Even under these conditions there will be quite a demand for brick and terra cotta for walls and exterior face work. Common brick will have a fair demand but would have much more if other forms were used.

The Minnesota legislature is drawing to a close and no one will be especially sorry for the session has been marked by a number of bills which would have worked havoc to building and construction lines if passed. One bill proposed to take away the lien rights of contractors by substituting the filing of a bond after a suit, thereby giving what is already a right, and taking away a protection for the contractor. Probably the most uncertain piece of business before the legislature was the different bills for the compensation of industrial accidents. There were four or five of these bills up and not one of them was sufficiently plain so but what it was a serious question if the passing of it would not throw the industries of the state into a turmoil of confusion as to where they stood. The best of the lot from the standpoint of the manufacturer or contractor, or the one who carries liability insurance, was that called the Gillette bill, which restricted the benefits and also the workmen were to bear a slight portion of the expense through an assessment upon their wages, of not to exceed one per cent.

The Minnesota chapter of the American Institute of Architects has passed resolutions objecting to a bill in the legislature which would require the state board of control to use native brick and stone exclusively in state buildings, such as those of the university.

The Twin City Tile and Marble Co., of Minneapolis, has recently filed articles of incorporation with a capital stock of $50,000.

The American Brick, Tile & Pottery Co. is installing a large plant at Walsh, near Tower, Minn., in extreme northern Minnesota, about 100 miles north of Duluth. It is expected that the new plant will be completed and ready to operate about June 1.

The Duclos brickyards at Little Falls, Minn., have closed contracts for the shipment, this summer, of 500,000 brick to the Watab Pulp & Paper Co., at Sartell, and 2,500,000 to International Falls.

C. N. Pinney, a prosperous Le Sueur county farmer, recently purchased six silos from the A. C. Ochs Brick & Tile Co., Springfield, Minn.

There is said to be a brick famine in Mankato, the manufacturing center of southern Minnesota in the brick industry. The brick famine is said to be due to the extraordinary demand on the yards for building purposes this spring. Over 1,000,000 brick were haued to the site of the Catholic mother house during the winter.

The Schroeder Brick & Lime Manufacturing Co. of Shakopee, Minn., has opened up for the season's operations. A new, up-to-date brick machine, with a daily capacity of 45,000, has recently been installed.

Ground has been broken at Lewistown, Mont., for the machinery plant of the Lewistown Brick & Tile Co.

The Dallas Brick & Tile Co., with G. M. Partridge as manager, has begun the work of constructing a new plant at Dallas, Ore.

The Gangor (Wash.) Brick & Tile Co. has resumed operations for the season's run. Thirty acres of clay land have recently been purchased and improvements will be added to the plant which are expected to double the capacity which is at present five to eight million brick per season.

The plant at Goldendale, Wash., which was recently purchased by Mr. W. B. Brooks of the Phillips Aldrich Co., has been overhauled and new machinery added.

The North American Brick, Tile & Pottery Co. of Walsh, Minn., purchased a quantity of machinery from the Red Cliff Lumber Co. at Duluth, Minn., including two 200-h. p. boilers, one 1500-h. p. engine, one 50-h. p. engine and a 700-light dynamo. The company is engaged in manufacturing common, pressed and vitrified brick, as well as tile roofing, sewer pipe and other products, the capacity of the plant being about 125,000 per day.

The National Brick & Clay Co. of Portland, Ore., have asked for the appointment of a receiver, the indebtedness of the company being $105,500. C. H. Page has been appointed receiver.

A new brick yard is in operation at Roseburg, Ore.

The Aberdeen (S. D.) Press Brick Co. has elected the following directors for the ensuing year: D. Jones, Morgan Jones, Geo. Batts of Aberdeen, J. P. Parmley of Ipswich and W. H. Craven of Minn. The company will increase its stock for the purpose of adding improvements to its plant. The product of the company is a fine press brick for which there is great demand in the northwest.

The Dickinson (N. D.) Fire & Press Brick Co. will furnish the brick for the new city hall at Grand Forks. The brick will be the same kind as those used in the Federal building at Grand Forks, which were furnished by the Dickinson company. This company has also received the contract for supplying 50,000 buff face brick for the new Elk building at Valley City.

We are informed that J. R. Miller, general manager of the Denny-Renton Clay Co. at Seattle, Wash., and Superintendent Keenan were badly hurt by a premature explosion at the Taylor Sewer Pipe Co.'s clay yard and coal mines.

Mr. G. W. Partridge of Falls City, Ore., has purchased clay lands on which he plans to establish a large brick plant.

The Cambridge Brick Co. of Cambridge, Wash., has been incorporated with a capital stock of $10,000 by D. E. Hill, R. E. Wilson, F. E. Haasch and F. J. Hill.

The name of the Harper Brick & Pottery Co., of Seattle, Wash., has been changed to Harper-Hill Co.

Mount Pleasant, Utah, is to have a new brickyard under the management of Bent Hansen & Son's Co., who have leased the plant belonging to C. E. Peterson. An expert brickmaker is to have the work in charge.

The Everett (Wash.) Brick Co. has been enjoying its share of prosperity, the brick produced is of a fine quality, much in favor with architects in Everett and the surrounding country.

One of the largest industries of Seattle is the Denny-Renton Clay & Coal Co., which company has recently purchased property of the Western Clay Co., approximating $1,000,000. The property includes the factory and site at the foot of 23d street, Portland, 34½ acres on the Willamette River opposite Oswego, and valuable clay deposits in various parts of Oregon.

The Western Clay Mfg. Co. was organized 14 years ago and has operated one of the largest clay working establishments in the Pacific northwest being the only concern in the state manufacturing sewer pipe and other clay products aside from brick works, and has been an important factor in the development and rebuilding of Portland. The plant will be improved and enlarged and a department added for the manufacture of paving brick.

Mr. C. E. Fuller of the Newberg (Ore.) Brick & Tile Co., informs us that they have recently completed another 30-ft. round, down draft kiln, making six in all, and will soon erect another. They use the Raymond radiated heat drier, having sixteen tunnels in operation, also a four-floor steam drier, both of which are working satisfactorily. The daily output of their plant is 35,000 and they realize $20 per thousand for first grade brick f. o. b. Newberg, supplying the trade in Portland as well as many other towns in Oregon, Washington and Idaho. They report the prospects are bright for a very prosperous year.

Mr. Jacob Gessel, manager of the Gessel Pressed Brick Co. at Logan, Utah, reports prospects are very encouraging for a good season's business.

## NEW ENGLAND

New Britain, Conn., April 27.—Business is becoming quite brisk the past few weeks in the New England district and every indication points to a busy spring season when the weather becomes settled. There is much important work in sight and a brief period of sunshine unaccompanied by cold winds is all that is needed to bring it within reach of the brick makers.

The Vermont Brick Co. is the name under which a company has been organized at Putney, Vt., to engage in the manufacture of high grade building brick. The company bought out the plant of Bodine & Davis and will continue to operate the plant. The officers of the company are: Christopher Steadman, president; H. O. Robinson, secretary and treasurer.

The Bagley-McDonnell Brick Co., of Middletown, Conn., has increased its capital stock from $10,000 to $30,000 and the name will hereafter be King-McDonnell Brick Co.

The Athol Brick Co., of Killingly, Conn., has filed a certificate of dissolution.

The Sherbrook Vitrified Brick Co. has been organized at Augusta (Me.) with a capital stock of $500,000. The promoters are: S. L. Fogg, of Bath, E. M. Leavitt, of Winthrop, and others.

The plant of the New England Steam Brick Co., at Barrington, R. I., has resumed operation after a shut down of several months. The plant at Nayette has also resumed operating, about 175 men being employed.

It is said the Jacobs Brick Co. and the Richard Murray Brick Co., the yards of which are located in Berlin, Conn., have decided to sell their product independently and will not go into the New England Brick Exchange.

The New England Brick Co. is preparing its various plants for the brick making season which will start just as soon as the clay pits are clear of water. The company now operates only one yard in Cambridge, the large one on Rindge avenue, formerly owned by the Bay State Brick Co. It also has yards in Belmont and Medford.

The Bangor (Me.) brick yards are planning to make more brick this year than ever before and anticipate a very large demand, not only for brick for business blocks, but also for residences. There are made in Bangor about 10,000,000 brick each year and it is expected this year will show a marked increase of this amount.

At the adjourned annual meeting of the Central Connecticut Brick Co., 77 Church street, New Britain, Conn., the following directors were elected for the ensuing year: R. Clifford Merwin, Frank H. Holmes, Harold R. Clark, Joseph Towers, Patrick McCabe, George H. Todd, J. C. Lincoln, R. O. Clark and H. D. Payne. At a subsequent meeting of the directors the officers were elected as follows: President, Joseph Towers; vice-president, George H. Todd; treasurer, R. O. Clark; and secretary, H. D. Payne.

The brick yards at Holyoke, Mass., will not begin operations this year until about May 1, because of the backward season. The manufacturers look forward to one of the busiest summers on record. One of the leading maunfacturers said recently Holyoke operators would send out the coming summer more than 15,000,000 brick, so heavy are the building prospects in the Connecticut valley.

It is pointed out that the Dwight Manufacturing Co. will require at least 7,000,000 brick for its extensive operations at its plant in Chicopee. Holyoke has in prospect three new mills, William Skinner & Sons, Goetz Silk Manufacturing Co. and the Crocker-McElwain Paper Co. Besides, there will be big apartment houses erected.

Among those who are planning to build largely in this line is Louis La France, who is reported to be ready to build the most elaborate apartment blocks in the city.

## THE SUNNY SOUTH.

Birmingham Ala., April 23.—The Freeman Fire Brick Co. of New Cumberland, W. Va., has been incorporated with a capital of $30,000 by William Barfield of Follansbee and G. L. Bambrick of New Cumberland.

The Drake Brick & Tile Co. of Drake, S. C., has been incorporated with a capital of $2,500 by W. P. Drake, J. A. Drake and J. P. Tart.

With a capital of $25,000 the National Brick and Tile Machine Co., of Oklahoma City, Okla., has been incorporated by W. W. Bennet of Allen, C. M. Robbins and W. A. Ledbetter of Oklahoma City.

F. J. Hansen of Hansen, Ga., and H. J. White of Tifton, Ga., have organized with a capital of $75,000 for the purpose of manufacturing silicia brick either at Tyson or Tifton, the location to be determined upon later, where Mr. Hansen will move his plant from Tifton.

J. W. Barnett, architect, of Athens, Ga., invites correspondence with a view toward purchasing pressed and rough brick and floor tile for a store building.

Fancy and pressed brick for $30,000 addition to store is wanted by the Maxfield Co. of Oklahoma City, Okla.

Jas. Lee Long, architect, of Hopkinsville, Ky., is in need of brick and floor tile for a $15,000 Elks home.

Floor tile is wanted by T. W. Smith & Co., architects at Columbus, Ga., for a residence.

A contract has been awarded to the Milledgeville Brick Works of Milledgeville, Ga., to furnish 200,000 brick for use in the construction of the new federal building at that point. The Milledgeville Brick Works is also furnishing the 450,000 brick for the new state prison farm building and 1,000,000 for the new building for the Georgia Normal and Industrial College.

"Our business has shown a considerable increase this year over the same months of last year," stated C. D. Patterson, manager of the Brick Selling Co. of Birmingham, Ala., "and when spring gets well under way with some of the larger buildings that are to be started going, we look for a good business in all lines of building materials. The rapid depletion of our forests, causing a steady advance in the cost of lumber, particularly of the better grades, is forcing other materials as substitutes to be more closely investigated, especially in residence work."

M. W. Berry of Columbus, Ga., has purchased one-half interest in the brick plant of W. M. Conine and will be associated with Mr. Conine in the operation of the property. The daily capacity of the plant will be increased to 50,000 brick, an open-air system will be installed and a number of other improvements will be made in the near future. Messrs. Conine and Berry own a fine deposit of clay at this point.

For some time there has been talk of forming a local co-operative brick company to utilize the unusually fine deposit of clay at Fayette, Alabama. However, as yet nothing definite has been done.

At Kaolin, Alabama, (Post Office at Columbus, Ga.) M. W. Berry has sold his interest in the Berry Brick Co. to Turner E. Berry. The company is now composed of George O. Berry, Sr., A. F. Berry and Turner E. Berry, all of Columbus, Ga.

## FROM THE BLUE GRASS REGION.

Louisville, Ky., April 23.—The Louisville Building Brick Association has been formed in Louisville "for the purpose of advertising brick as a building material through the newspapers and otherwise." The organization has already begun work along this line by having the Louisville Herald, a local daily, devote a page each Monday morning to the exploitation of brick as a building material, ads of the various manufacturers and contractors being run on this page and reimbursing the newspaper. Officers of the organization are Joseph Nevin, president; F. D. Schmidt, vice-president; T. Bishop, secretary, and Isaac Tyler, treasurer. Meetings are to be held regularly in the Tyler building.

The Southern Brick & Tile Co., of which T. Bishop is manager, has been enlarging its drain tile plant at Whitney Ky., having installed a new boiler and enlarged its dry shed to double its former capacity. The plant at Hoertz, Ky., is now operating to its capacity, so that the company is now in shape to handle the biggest kind of orders. The demand for drain tile is reported to be exceptionally good.

Stock in the Kentucky Vitrified Brick Co. and in the Bannon Sewer Pipe Co. is involved in suit which is being tried in the Circuit Court in this city. Jeff Bannon is the defendant and other relatives of the late Patrick Bannon are the plaintiffs. The claim is made that Jeff Bannon secured $45,000 of stock in the two companies from his father by the exercise of undue influence. This is the second trial of the case.

The Dalton Brothers Brick Co. has been formed at Hopkinsville, Ky., with a capital stock of $50,000, by George D. Dalton, Monroe Dalton and G. E. Dalton. The corporation will take over the business of Dalton Brothers, who have been operating a brick yard for some time.

Operations have been resumed at the plant of the Barbourville (Ky.) Brick & Tile Co., which has completed the installation of new machinery and other improvements, the cost of which has been in the neighborhood of $15,000.

## BRIGHTER PROSPECTS IN THE EAST.

New York, April 24.—Eastern manufacturers of common brick are beginning to see daylight. Local quotations for Hudson river brick reached as high as $6 per M. this week, although actual sales hung around three-quarters, at which figure, however, they were stiff. The Raritan river situation is an exact parallel, indicating that the two leading factors supplying the Metropolitan market, today, are exercising great care not to over-supply the demand. The Hackensack district, in New Jersey, is developing remarkable strength as far as demand is concerned and manufacturers are holding their prices firm, at $6.50. Mid-Jersey manufacturers located in the South river section show sales quite up to the normal early spring volume.

The true barometer of the Eastern situation is in the relationship of shipments to sales. All through April arrivals have shown studied restriction. Sales during the first week were 64 against 67 arrivals; in the second week they were 43 against 35 arrivals; in the third week sales exactly equalled the 52 arrivals and in the fourth week there were only 2 cargoes left over with requisitions on the manufacturers for supplies based upon last year's shipment of 69 for the week running from April 11 to 16, less allowance for a season two weeks backward. These figures show, better than any other way, how carefully the up-river manufacturers are sending brick into this market and how conservative the Raritan river manufacturers are acting.

There are possibilities, born of developments in the building trades in this city, within the last ten days, that despite the backward start of the 1911 building season, the present year will total as large a volume of construction work as that of 1909, which is generally looked upon as a banner year for building materials.

This optimistic view is taken by brick agents here because of the increasing agitation for a revision of the building code. They recall that when the futile revision of 1909 was in progress, hundreds of owners projecting building improvements filed their plans and began work at once to get their buildings constructed under the old provisions. When the proposed ordinance was vetoed by Mayor McClellan, late that fall, many of those operations were abandoned and their actual commencement have not yet, in many cases, been reported.

At that time there was a bitter feud on between the National Fireproofing Co., manufacturers of hollow tile fireproofing blocks, and the Roebling Construction Co., specialists in concrete fireproofing. The concrete interests were backed by the big cement companies and the fireproofing company relied upon its selling arguments for its position, although Daniel F. Cohallan, counsel for Tammany Hall, was said to have had leadings toward the hollow tile company, while Richard Crocker, Jr., was closely identified with the concrete company.

A weighty committee of revision was appointed to carry on the work. After about a year of study they reported back to the Board of Aldermen and there the political winds sought to rend and tear the tentative document. When it was proposed to shut out the concrete interests entirely in favor of the use of hollow tile fireproofing in New York buildings, there was an indignant protest on the part of the cement manufacturers who had visions of the entire Metropolitan market being shut out from their reach. Recriminations were indulged in in the press and the act giving control practically to the hollow tile interests finally reached the Mayor's office, where it was vetoed. The matter has been a dead letter ever since.

Since the fatal Washington place fire and the fatal factory fire in Newark, a determined effort has been made to have certain parts of the code revised. President McEneny, of the Borough of Manhattan, Superintendent Rudolph P. Miller, of the Building Bureau, and Chief Croker, who recently resigned from the Fire Department to take up the duties of the Bureau of Fire Prevention, if such a bureau is organized, have been working with a committee, representing the Building Trades Employers Association, and a committee representing the New York chapter of the American Institute of Architects, on a revision of the section pertaining to theatre fire escapes and are now at work on another section governing the construction of public amusement halls.

In view of the non-political complexion of this body, disinterested parties, such as philanthropical societies, public-spirited property owners and architects, have been urging the revision of the entire code, and pressure is being brought to bear to have this work undertaken at once.

To make the situation still brighter for the brick manufacturer, who is eagerly seeking causes leading to better building conditions, an informal announcement was made last week by the concrete interests that "the Roebling Construction Co. and the National Fireproofing Co. have reached a more amicable understanding of each other's positions in the points heretofore at issue." The significance of this is that if an attempt to revise the building code were to be made now, the element of bitter rivalry which defeated the much-needed correction of the building code two years ago would be absent and the desired object could be accomplished without friction.

As soon as any movement is made toward actual revision, there undoubtedly will be a rush to file plans so as to avoid the heavier burdens entailed upon owners and builders, as the new code is almost certain to contain.

Another reason why the clay products interests here in the East are feeling more optimistic and are figuratively "getting on their feet," is because suburban building activity is showing continued strength. A study of building bureau statistics in the city of Newark, by your correspondent last week, shows a gain in the total number of permits issued for all structures in the first quarter of 735 in 1911 as against 618 last year and 580 in 1909. Newark's percentage of completed buildings in that period for the three years just closed show $2,107,008 as against a total permit value of $2,422,499 in 1911; $1,421,779 as against a total of $2,912,268 in 1910, and $1,902,304 as against a total of $2,393,959 in 1909. In that city, the center for building material distribution for New Jersey, 499 of the 735 permits issued for all structures were for dwellings and 211 of these were for brick structures as against only 165 in 1910 and 171 in 1909. This indicates, it would seem, an increasing use of brick for residence construction, especially since there were only 18 concrete structures erected in the city of Newark during the entire first quarter of 1911, and only 22 in a corresponding period of 1910.

To show that this activity is not confined to one section, Paterson, which is supplied almost entirely by the Hackensack brick district, shows 118 building permits in the first part of 1911, as against 102 in a corresponding period in 1910, and 103 in 1909. Passaic, and the Oranges, all in this district, also show corresponding increases in building permits in favor of the quarter just passed. As has been shown in these letters before, Queens leads the entire district in new construction work with 1,575 new buildings projected so far this year as against 1,189 for a similar period last year.

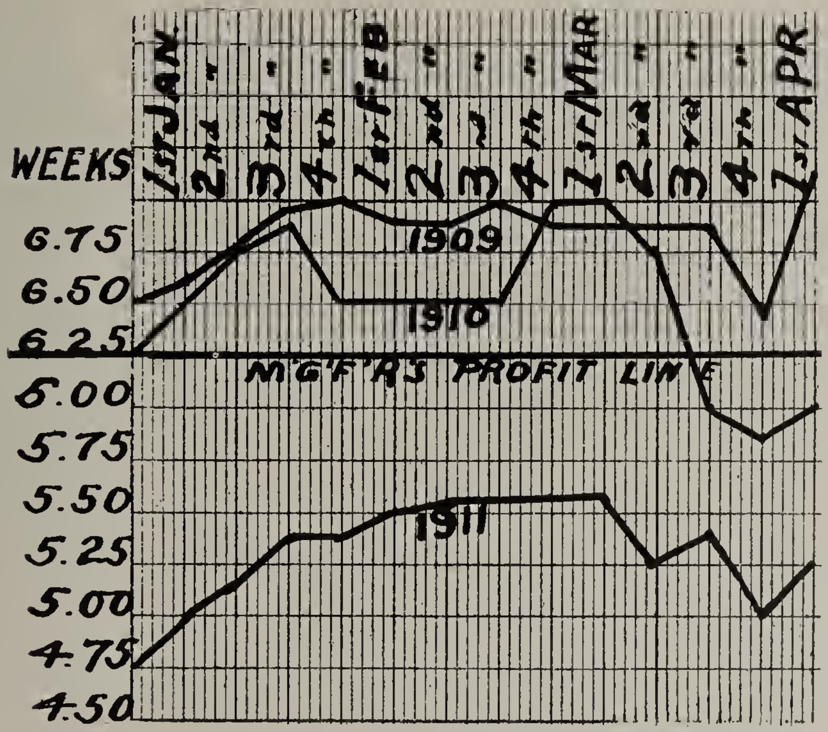
These statistics are given to show the Eastern brick maker that business prospects are not so gloomy as the reports from New York seem to warrant.

The agent gets his reports of the business outlook from the representatives of the dealers who come to feel out the situation before placing orders. It is natural that these men should make their reports pessimistic. If they can convince the agent and the manufacturer that business is bad, he can keep prices down. It is significant, though, that the consumer does not reap the benefit of the lower prices except on jobs where competition is very keen. In fact, the dealer's agent will tell the manufacturer's agent that only his ability to obtain low prices enables him to meet competition. The manufacturer forgets that there was competition when brick was $7.50, the only difference between then and now being that he had a profit of about $1.25 or more a thousand, while now he is losing money in supplying the market.

Here are indisputable facts showing the relative position of construction works in 1911 with those of the first quarters of 1909 and 1910, particular attention being directed to two paramount facts: first, that the number of new buildings and alterations projected and completed in the first quarter of 1911 was 362 more than last year and 104 more than in the banner building year of a decade, namely, 1909; and second, that the approximate percentage-value of work completed in the first quarter of this year over last year was $8,000,000. Note. also, the very much higher percentage of work completed in relation to the number of new applications made.

| First Three Months of | 1909 | 1910 | 1911 |
|---|---|---|---|
| No. Applications for New Buildings and Alterations.. | 1,135 | 963 | 975 |
| No. New Buildings and Alterations that went ahead..... | 678 | 994 | 672 |
| No. New Buildings and Alterations that were completed. | 675 | 417 | 779 |
| Percentage of work completed in relation to number of applications ................. | 59.47 | 43.3 | 79.9 |
| Estimated Cost New Buildings and Alterations ............ | $43,947,350 | $29,141,526 | $25,740,807 |
| Approximate - Percentage of Value of Work Completed.. | $26,135,489 | $12,618,280 | $20,566,904 |

But, in spite of the normal activity as shown in the above figures, prices for common brick have been exceptionally low. Various reasons have been ascribed to account for this condition. Very likely it is accounted for by the backwardness of the season and very heavy weather earlier in the quarter, and the extremely large quantities of common brick under cover, in stacks and on dealers' yards. The relative position of the trend of prices this year with those of the two preceding first quarters is shown in the accompanying chart.



William K. Hammond, long president of the Hudson River Brick Manufacturers Association, is slowly recovering at his home at 324 West 29th St. from injuries received by being run down by an automobile near his office in West 52nd St., on April 10.

The annual meeting of the Building Material Exchange of the City of New York was held at the exchange rooms, 20 Vesey St., on April 10, at which time William B. DuBois was elected president, to succeed Uriah F. Washburn; William H. Barnes, vice-president, to succeed William B. DuBois; William C. Morton, treasurer.

The headquarters of the Bonner Brick Co. have been moved into the annex of the Whitehall building, just completed. This brick is handled in New York on the Building Material Exchange by John C. McNamara.

Many of the Haverstraw plants are getting ready to open about the middle of May. These include the Allison, Washburn, Garner, DeNoyelles, Lynch & O'Brien, Reilley & Tanney and the Bennett yards. Many of the Newburgh plants will not open until a fortnight later. It is probable that no new brick will come into this market before the first of June this year, owing to the large supply on hand up the river.

The Hackensack district yards are practically ready for making brick. These include the Charles G. Walsh, Edward Schmultz, M. B. & L. B. Gardner, I. W. Felter, Little Ferry and the Mehrhoff yards at Little Ferry.

F. W. May, who was the common brick representative for the Rose Brick Co., of West 52nd St., near 11th Ave., has his offices now with the general headquarters at 103 Park Ave.

The plant of the Sayre & Fisher Co., at Sayreville, N. J., is being operated to almost full capacity to meet the demand for its products. An officer of the company said the other day that he expected 1911 to measure up in volume of business to that of last year and that with the coming of good building weather all construction specialists will look upon the future with more optimism.

The Chestnut Bridge White Brick Co. has been incorporated with a capital stock of $100,000 by J. G. Beemer and A. Petit, both of 121 West 42nd St., and others.

It is reported that the Federal Terra Cotta Co. will spend over $100,000 on its plant at Woodbridge, N. J., in order to increase the output from 1,400 to 1,800 tons per week. The concern employs 500 men.

The striking employes of the Ostrander Fire Brick Co., at Perth Amboy, N. J., returned to work, after being out one day. It is said a slight increase in wages was granted.

The American Brick Co. has been organized at Trenton, N. J., with a capital of $50,000 for the manufacture of brick. The incorporators are H. Nicholson, Scranton, Pa.; C. O. Fuller and C. S. Aitkin, of Trenton.

## HOOSIER NEWS.

Indianapolis, Ind., April 20.—The Indiana Railroad Commission has issued an order suspending for a period of 180 days the proposed increase on freight rates on brick and other burned clay products in this state. This order was issued immediately after the receipt of information by the commission that the Interstate Commerce Commission had issued a similar order affecting interstate freight rates. The railroads in Indiana most affected by the order of the commission are the Vandalia, Cincinnati, Hamilton and Dayton, the Chicago and Eastern Illinois and the Clover Leaf, all of which have large clay industries along their lines. This order will be of the utmost importance to the brick and clay industry of Indiana, for the proposed increases range all the way from 10 to 25%. The matter first came before the Indiana Railroad Commission a short time ago in the form of a petition filed by Murphy Brothers, of this city, dealers in burned clay building material. This petition asked for an order setting aside the proposed new rate on clay products out of Indianapolis, the petition being based on a recent increase of 16% between Indianapolis and Grand Rapids, Mich. This petition was referred by the Indiana Railroad Commission to the Interstate Commerce Commission.

According to the petition the Indianapolis concern sold a consignment of roofing tile in Grand Rapids, Mich., the contract price being based on the former freight rtae of $1.25 a ton. When the freight bill was received it was found that the rate had been increased to $1.45. In the petition which was prepared and filed with the Interstate Commerce Commission it was requested that the increased rate be set aside for a period of six months and that the commission make an investigation of the grounds for the increase.

Increases in freight rates on burned clay products are general throughout the state, the railroad commission reports, and the commission will go into the matter thoroughly. The increase coming at the opening of the building season has caused considerable worry on the part of dealers, especially since many of them had sold their product for spring delivery on the basis of the former rates.

James E. Howard, an engineer from the United States bureau of standards, was in Indianapolis for some time to make a study for the government of engineering and construction problems connected with the manufacture and use of brick. Mr. Howard came here primarily to make a critical inspection of the brick pavement at the Indianapolis Speedway, which he had been informed was one of the best examples of brick paving in the United States. The speedway pavement is two and one-half miles in length, and was laid under the direct supervision of Will P. Blair, secretary of the National Paving Brick Manufacturers' Association. Another modern brick pavement is in Cleveland, Ohio, and Mr. Howard has also inspected that piece of work. It is his purpose to study the elastic properties of paving brick under varoius conditions, the climatic effect, usage and other matters interesting to manufacturers and to the public generally. In this work Mr. Howard is receiving the co-operation of the National Paving Brick Manufacturers' Association and the National Brick Manufacturers' Association.

"The value of the clay products of the United States," said Mr. Blair, "is equal to the value of the gold mined, and the government is doing a good work in taking up the solving of problems in connection with the use of clay products."

Mr. Howard is being assisted in his work by Wilbert Brunner, another engineer from the bureau of standards.

The Vigo Clay Co. has filed a suit against the trustees of the United Brotherhood of Carpenters and Joiners of America, John R. Warren and the Illinois Surety Co., on account. It is alleged that the company furnished material for use in the erection of the brotherhood's building in this city when Warren had the contract. The work was not finished by Warren. The company seeks to hold the surety company and the trustees liable for the bill.

The recent session of the Indiana Legislature failed to make any important changes in the paving laws of the state, and the result is that a comparatively small amount of street paving will be done this year. An effort was made to repeal some of the provisions of the Thornton paving law, but the effort failed. The main feature of this law that has held back street paving work during the past two years is the provision which requires the city to pay for all street intersections out of the general fund. Under the old law the cost of paving street intersections was paid by the property owners, and under that system the paving business in Indiana flourished. Many of the cities, however, are not in any financial condition to pay for the street intersections, because they are in debt up to the legal limit and cannot raise money for that purpose. If the legislature had passed the bill to change this feature of the law and put it back to the old system many cities would have ordered street paving done this year. Some relief was granted in Indianapolis, but it did not extend to other cities. Therefore, paving will be light except in this city.

The building brick trade, however, is good in Indiana. Much building is going on all over the state. The drain tile business also is reported good.

A company under the title of the Butler Brick and Tile Co., Butler, Ind., has been incorporated with a capital stock of $7,000. The directors are: J. N. Boyle, A. B. Countryman, Herman Groscup and E. A. Signs.

The dismantling of the brick yards at Porter will be begun this week. The machinery will be shipped to St. Louis.

Ex-Mayor John W. Holtzman, C. A. Hilgenberg, Louis Coleman and Edward W. Zarser, capitalists of Indianapolis, recently visited Carbon, Ind., where the Carbon Coal & Clay Co., of which they are stockholders, owns 220 acres of land which is underlaid by fine strata of clay, shale and coal. They have six feet of fine surface clay, six feet of shale, four feet ten inches of block coal, and seven feet of fire clay. The company are contemplating the erection of a large clay plant on their land.

More than 18,000,000 brick were made last year in Evansville, Ind., although the plants did not run full capacity. Indications point to a record breaking year for 1911, and the output is expected to run to 25,000,000.

The Brazil Face Brick Co. is a company which was recently organized with a capital stock of $60,000 to take over the plant of the Sheridan Brick Co. at Brazil, Ind. The incorporators are: George Seidensticker, F. Gomp, F. M. Thompson and T. F. Hornaday.

The Lewiston Brick & Tile Co., with a capital of $75,000, have purchased 25 acres of land at Lewiston, Ind., where they will establish a clay plant. The incorporators are John Griteencourt, N. J. Littlejohn, G. J. Wideman, F. E. Wright, J. E. Leene, and O. W. Beldon.

The Lewiston Brick & Tile Co., with a capital of $75,000, have capital stock. A new boiler will be among the improvements.

The Underhill Brick & Tile Co. has been organized at Rockport, Ind., with a capital stock of $24,000. The directors are M. F. and C. D. Underhill, J. G. Rimstedt, C. C. Mason

## THE MIDDLE STATES.

The Two Rivers (Wis.) Brick Co. will remove the machinery and raze the buildings and the company will go out of existence.

The drain tile company at White Hall, Ill., has let contracts for the construction of four large 30-ft. kilns at their plant. It is quite probable that electricity will be installed for power as the plant is located near the city power house.

The American Clay Products Co., at Roanoke, Ill., has a full force of men at work and is rushed with orders for tile and brick.

A fire destroyed the factory of the National Brick Co. near Trotter, Ia., causing the loss of several thousand dollars.

Mr. L. B. Pierce, a veteran in the tile industry of Winfield, Ia., has started his tile and brick plant for the season. Mr. Pierce does a large and prosperous business, not only supplying the home demands but shipping his product to many other localities.

The West Salem (Ill.) Hollow Brick & Tile Co. has increased its capital stock to $50,000.

Waterloo (Ia.) capitalists have purchased clay lands near Belle Plaine, Ia., where they will erect a new brick and tile plant. The company has a capital stock of $400,000. The plant will cover five acres and will be a modern one in every respect, with twelve kilns to start. The daily capacity will be 100,000 brick and 100 men will be employed.

T. W. Fuller has purchased an interest in a brick and tile plant at Grundy Center, Ia. Several improvements will be added which will probably include machinery for making tile.

The Union Brick Co. at Iola, Kan., has resumed operations after adding a number of improvements to the plant, including a large fan for drying brick, run by electricity supplied by the city power house. This plant produces on an average of 7,000 brick per day.

## THE SMOKY CITY.

Pittsburgh, Pa., April 27.—Brick and terra cotta salesmen in the Pittsburgh territory are deeply interested in the announcement of the plan to erect two mammoth hotels in his city during the next 12 months, for this will result in some very good contracts being placed.

The largest hotel will be built at Sixth avenue and Smithfield street and west on Sixth avenue to the Duquesne club building. On this site is the well-known Lewis Block, where the Builders' Exchange has been occupying quarters, as have a number of brick salesmen. This new improvement will cost upwards of $6,000,000, and the building will be 16 stories high and contain over 700 rooms. Plans call for the providing of the largest convention quarters of any hotel in the United States, and as a result is it reported an effort will be made to land the National Brick Manufacturers' Association for 1913.

White terra cotta, glazed, will be used, it is said, for the exterior walls. This conforms with the construction of another Oliver building at Sixth and Wood streets, which is occupied by the McCreary stores. This building is known as the whitest and cleanest in Pittsburgh.

Another $2,500,000 hotel is to be built at 7th St. and Penn Ave., just three blocks from the Oliver Hotel. This will be of brick construction, and will contain over 500 rooms. These two hotels will be the largest contracts clay manufacturers will have a nibble at in the Pittsburgh territory during 1912, according to present information.

The J. M. Porter Brick Co., which for a number of years occupied a suite of offices in the Bessemer Building, has removed to the new Jenkins Arcade Building, where larger office space has been acquired.

Pittsburgh building brick salesmen are very much interested in the plan to form a Building Brick Salesmen's Association or organization to work in conjunction with the Building Brick Association, and considerable preliminary work is now being done here. The views of salesmen from other parts of the United States are being obtained, and letters are being received by those back of the movement from many who declare they are greatly interested in such an association. Meetings are to be held at the same time the Building Brick Association convenes, and the two will work together. It is likely the organization will have Pittsburgh salesmen for its officials for the first term, for it is the Pittsburgh salesmen who have worked the matter up.

A charter will be granted May 8 at Harrisburg, Pa., to the McFetridge & Bros. Brick Co., the application for the charter having been recently filed by McKee, Mitchell & Alter, of the Park Building.

James V. Rose, one of the best known brick manufacturers in Western Pennsylvania, and who was a resident of Sharon, Pa., died recently, aged 59 years. He was president of the Rose Fire Brick Co.

George B. Weitzel has placed his brick plant in operation at Wrightsville, near York, Pa., after a lot of new machinery was installed. The demand for building brick with this factory is heavy, and it will be operated steadily throughout the summer.

During a brief idleness at the plant of the Auburn Shale Brick Co., near Reading, Pa., improvements to the plant were made. These have been completed and the property is now on the active list.

The Elwood City (Pa.) Brick Co. will install a traveling crane in their plant to facilitate new construction ,and which will aid in the moving of materials and machinery after the new plant is completed. It is believed the company will be able to put its product on the market within three months, for the building of the plant is progressing rapidly.

According to information coming from Elkton, Md., it is possible that the National Fireproofing Co. may not build its new plant in that place after all. W. H. Foster, general agent of the National, was in Elkton recently, when this bit of information was advanced.

General manager W. E. Ringrose, of the Clermont (Pa.) Sewer Pipe Co., is authority for the statement that the plant will be operated continuously throughout the year. Sufficient business has been booked to keep the property on the active list. The company has been busy on an order for a Canadian city and a recent piece of business booked calls for one million feet of conduit pipe for the Boston Elevated Railroad Co. The outlook for business for this concern is decidedly encouraging.

The following quotations on brick in the New York market have been received by Pittsburg sales managers:

Cargo lots, delivered, cars, New York.

| | |
|---|---|
| Front, buffs, No. 1 | 28 00@30 00 |
| Grays, shaded and speckled | 32 00@..... |
| White, No. 1 | 32 00@..... |
| Hudson River, common | 4 75@ 5 25 |
| Light, hard | 4 00@ 4 25 |
| Pale | 3 00@ 3 25 |
| No. 1, fire, American | 25 00@..... |
| No. 2, fire, American | 20 00@..... |
| Scotch | 35 00@..... |

The Ridgeway Brick Co., of Ridgeway, Pa., have been making some extensive improvements to their plant—increasing capacity.

The Pittsburgh Silica Sand Co. has received its charter from the Secretary of State, and has a capital stock of $100,000. It is reported a brick plant will be built near Jackson Centre.

Face brick plants in the Beaver County district are very active now, the demand for the impervious article made there being greater than has been experienced for years. The Glonniger, McLean and Vanport Brick Co.'s plants are working steadily.

## OUR BUCKEYE LETTER.

Columbus, O., April 25.—There is no denying the fact that the brick manufacturers in Ohio, especially those in the building brick business, are looking forward to a busy summer. Just as soon as a lot of useless political agitation is over, the country is going to go forward. What is there to stop it? Banks have lots of money, in fact, more than they want, but there is a certain uneasiness, which is reflected upon the small borrower.

It is probable that the decrees in the foreclosure suits against the old Columbus Hocking Coal & Iron Co. will be taken into the Federal courts within a few days, on the first and second mortgage bonds. At this writing, the indications are that on or before July 1, the property of the old corporation will have been bid in by the new company which is known as the Hocking Valley Products Co. The reorganization will have then been completed. Improvements on the large brick plant near Logan, O., owned by this company, are nearing completion. It is not likely this plant will resume operations until after the approval of the sale of the various properties to the new corporation. The brick property has been almost entirely rebuilt, making it one of the largest and most modern brick manufacturing properties in the whole Hocking territory.

Fire, which started in the boiler room of the Findlay (O.) Hydraulic Brick Co.'s plant, caused a damage of about $2,000. The boiler room, happily, was the only part of the plant that suffered loss.

There will be no strike of the bricklayers in the Columbus district. The workers will receive $5.40 per diem or 67½ cents per hour, the highest ever paid in this district. Contractors have secured valuable concessions in reference to apprentices. The contractors have only been allowed one apprentice in three years, but under the new scale two apprentices will be permitted. In the past the best men on the job have been receiving more than the scale, but never again, for all will receive the same wage.

Members of the Board of Education of Ashland, Ky., inspected the plant of the Black Fork Brick Co., at Portsmouth, piloted by general superintendent, Simon Reitz. A $50,000 brick plant is to be built at Ashland this summer, hence the visit.

The Lockland Brick Co. has been formed with a capital stock of $20,000 by Joseph E. Smith. Headquarters will be at Lockland.

According to information received by Columbus brick manufacturers, the Interstate Commerce Commission has suspended until Aug. 15 the proposed advance in rates on brick in the Central Freight Territory.

With a capital of $25,000 the Standard Clay & Glass Products Co. has been formed at Magadore, O., by Charles Bertsch and J. L. Swartz.

Strikers at the plant of the Granite Clay Co., at Magadore, clashed with men who went to work in their places recently. Clubs, rocks and even knives are said to have been used. The men on the jobs are reported to have won out, it is said.

It now looks as if the plan to establish a new plant at Ashtabula, O., would prove a success. Stock in the new concern is being subscribed with considerable liberality. M. C. Frank, formerly with the United Brick Co., at Conneaut, O., is at the head of the new company.

Brick machinery dealers here have been advised that the Barbourville, (Ky.) Brick & Tile Co. plan to double the capacity of the works. Additional machinery and kilns will probably be ordered at an early date at a cost of $15,000.

After being closed for the winter season, the Warren (O.) Brick & Tile Co. have resumed operations in full. Orders are said to be very good.

M. E. Forrest & Son have started their brick and tile plant at Middleport, O., on the Ohio River.

Automobiles were used to carry fire extinguishers to the plant of the Massillon Brick Co. when fire was recently discovered in the boiler room. Only the roof was damaged.

The Uhrichsville (O.) Clay Co., which was recently incorporated, has elected the following board of directors and officers: Dr. W. A. Coldron, O. A. Parr, Dr. H. S. Clever, Benner Minnich and E. E. Benner. Dr. W. A. Coldron was elected president and O. A Parr, secretary-treasurer. Construction of the new plant is now under way, and will be completed within a few months. The most modern machinery is to be installed.

All interests in the Buckeye Fire Brick Co., at Portsmouth, O., which were held by men of that city have been turned over to the Thomas Moulding Co., of Chicago. The capacity of the Portsmouth plant is to be almost doubled immediately.

Hearings have been concluded at Ashland, Ky., by Hon. N. B. Pugh, an examiner for the Interstate Commerce Commission, in the complaint filed with that board by the fire brick manufacturers of the Ashland-Portsmouth, O., district. It was alleged they were shut out of the southern market because of excessive freight rates. It was claimed by the local men that all this trade was going to St. Louis manufacturers.

At Mill Centre, O., Bumgartner & Co. are arranging to make drain tile.

Construction of the new plant of the Uhrichsville Clay Co., at Uhrichsville, O., will commence soon. The company was recently formed under Ohio laws.

At Alliance, O., the Ceramic Improvement Co. has increased its capital stock from $10,000 to $25,000.

From Youngstown, O., comes the news that bricklayers in the New Castle, Pa., district want their wages increased from $4.80 to $5.20 per diem, the same rate as paid in the Pittsburg and Youngstown districts.

G. H. McCormick and his sons, Robert and Clarence, have formed the McCormick Tile & Brick Co., at Gallipolis, O., with a capital stock of $10,000. A plant in East Gallipolis will be operated.

Capital stock of the Ohio Tile & Brick Co., of Lima, O., has been increased from $30,000 to $50,000.

At the annual meeting of the Sterling Brick Co., at Marietta, O., the following officers were elected: President, Charles Flanders; vice-president, William Morse; secretary, B. B. Putman; treasurer, W. S. Pattin; general manager, S. A. Palmer. Charles Curry bid in the Williamsburg brick plant at Batavia, O., at assignee's sale for $1,600.

## KANSAS CITY AND THE SOUTHWEST.

Kansas City, April 25.—Practically all of the Kansas City brick plants are now in operation, having secured an ample supply of gas for their plants for the summer season, and in a short time there will probably be an abundance of common brick to supply the local demand. Up to the present time, however, there has been a distinct shortage, and the jobbers of Kansas made brick have been kept hustling all the time, and could not even then take care of all the business in sight. There has been a stiffening up of prices in the Kansas field since a meeting of the brick manufacturers of that section was held, at which it was discovered the supply of brick on hand was fully eight million less than at the same period of last year. They immediately raised their price to $4.00 at the plant, and there was no trouble about getting that much for them, as this market was very strong. It is hardly expected that these prices can be maintained for a great while, however, unless work here opens up stronger as the season advances.

At the present time there is not nearly the amount of building anticipated, and while there is a feeling among the brick people that the building operations will open up stronger and stronger as the season advances, still some think this will not be a very good year, owing to the holding back of capital. One thing that helps the brick business is the fact that most of the new building is of the small class, residences and flats, where brick makes a larger percentage of the building material than would be the case in large buildings of steel construction.

There is a general belief that this city is going to grow more in the next decade than any other city in the interior of this country. This at least shows that the people living in Kansas City have great confidence in its future, and as the future of this city depends to a great extent upon the development of the country around it, agriculturally, and it is a great territory in both size and richness, it seems certain that the estimates for the future are not far wrong.

Some who are inclined to watch for the unexpected look for little building this year, but the brick people can hardly be classed in this list, for they are going ahead and preparing for a big demand as the year advances, although they do not expect that high prices will rule.

Jobbers here state that they could have done a great deal more business in March if they could have purchased the brick. They had the orders, but could not fill them, and some are making the same report for the first part of April.

Thos. Eadie, of the Eadie Building Supply Co., has returned from his pleasure trip to California, and found business booming in his establishment.

The Glover Tile Co. has been incorporated at Fort Collins, Colo., with a capital stock of $15,000, by C. N. Glover, George Clammer and Earl E. Searchett.

The T. R. Mills Lime & Brick Co. has just been incorporated in Little Rock, Ark., by T. R. Mills, C. B. Mills and H. D. Lewis, with a capital stock of $90,000.

The Alvin Brick Co. plant in Alvin, Okla., was recently sold to Kimbrough & Dodson, of Dallas, Tex.

The Moline Brick Co. has been organized in Moline, Kans., with the following officers: Philip Walker, president; J. H. Houck, secretary; and W. S. Houck, general manager.

The Salina Vitrified Brick Co., of Salina, Kans., has just added to its plant a kiln of 275,000 capacity.

The Evangeline Brick Mill Co. has been organized in Evangeline, La., by E. A. Edwards and others.

The Oriental Vitrified Brick Co. has been incorporated in Lugert, Okla., with a capital stock of $60,000, by E. J. DuPree, J. F. St. Clair and P. S. St. Clair.

The Rio Delta Clay Products Co., of San Benito, Tex., is figuring on adding the making machinery to its plant.

The Claremore Buff Brick & Product Co. has been incorporated in Claremore, Okla., with a capital stock of $25,000, by W. E. Goff, Girard, Kans., who is president and manager; J. D. Turkington, treasurer; and I. R. Lamport, Mapleton, Kans., construction engineer.

The Buffalo Brick Co., of Buffalo, Kans., is adding to its plant a new brick machine and pug mill, also a reciprocating automatic cutter.

The Fort Scott Brick Co., of Fort Scott, Kans., has added three new presses and a pug mill to its equipment.

The M. J. Lee Brick & Tile Co., of Paola, Kans., of which J. W. Jenkins is manager, has reconstructed its plant which was burned last August, with a capacity of 50,000 brick daily, and will soon be placing its product on the market.

The Marshall Brick Plant, of Marshall, Tex., of which W. H. Pugh is manager, proposes to put in a plant with a daily capacity of 50,000 brick.

The brick manufacturing plants of John Schwynn, located at Doniphan and Aurora, Neb., have started up with full capacity, each plant turning out about 5,000,000 brick per season. About forty men are employed at each plant. The building prospects in that vicinity are as good or better than at a corresponding date of last year. Only the ordinary builders' brick of preferred quality, however, is made

The Cherryvale plant has been leased to the Buff Brick Co., of Buffville.

A. P. Green has purchased the Mexico Brick & Fire Clay Co.'s plant in East Mexico, Mo. Mr. Green is to greatly improve the property.

Ore City, Texas, a new iron mining and manufacturing city, requires that all buildings within the fire limits be constructed of brick. This city offers splendid inducements for the establishment of a brick plant. L. L. Featherstone is secretary of the Ore City Co., Beaumont, Texas.

The new brick plant that has been established at Reiser, Tex., is now in operation and is turning out a fine grade of soft-burnt clay brick. The plant has a capacity of 18,000 brick per day under ordinary conditions, but this can be raised to 25,000 if such a capacity were demanded. The brick is of yellowish-grey appearance and is claimed to be of excellent quality for building purposes.

A Texas paper states that a famine of brick is on in Houston. Since the boyhood days of the oldest dealer in Houston there has never been such a scarcity of this necessary building material and, although the kilns are working night and day, there is no change in the condition.

There is but one cause, and that cause a joyful one—the unprecedented building activity has temporarily outgrown the facilities of the men who are burning the midnight oil in the endeavor to keep up with their trade.

There are more than ten brickmakers and dealers in Houston and practically every one of them tells the same sort of a story in relation to their business. Despite the fact that they are working double-handed and double shifts, the building operations of Houston have left them in the rear much like the proverbial hare left the proverbial tortoise.

There could not possibly be a better testimonial to the rush of building operations now in progress in Houston. Office buildings, factories, skyscrapers, residences, streets, sewers, all are demanding their quota in order that building operations may not be stopped. New contracts are still being let daily.

Rumor is current that the Okmulgee (Okla.) Brick Co. is to be taken over by a new firm and that operations will be begun shortly to improve the plant and start business again.

## THE KANSAS OUTLOOK.

Coffeyville, Kan., April 12.—Managers of the various brick plants of Southeastern Kansas are elated over the business prospects of the coming spring and summer months, and are unanimous in the opinion that they will be banner ones in the brick industry.

This opinion is based on the fact that there is an unusual number of inquiries for quotations and probable dates of delivery, and a great number of orders being placed for delivery "as soon as possible."

Manufacturers of both paving brick and block and face pavers for building purposes share in this demand for productions.

A comparison of the business for the month of March, 1911, with that of the month of March, 1910, in the manufacture of paving brick and blocks shows March, 1911, to have surpassed that of a year ago by several hundred thousand and with a better price for the product, this condition being brought about by the unusual weather of last March for construction work.

This comparison is not true, however, with face pavers for building purposes, for in the month of March, 1910, prices on this product were high and at the beginning of April began a steady decline until May, when it was considered by managers that they had reached the bottom. Several managers of plants in the southeastern part of this state were left with a large amount of their product on hand which had been ordered and contracted for, but not used by brokers on account of the decline.

On the contrary manufacturers of face paving builders are not crowding themselves with early orders, but are only taking a conservative number and for short time deliveries, expecting the prices to advance within the next thirty days.

It is true that there are several plants through this section which make a specialty of face pavers that are behind with their orders and are rushed at the present, but this, it is stated, is because of a temporary shutdown for repairs following the winter's run.

Brick plants making street paving brick and block are enjoying capacity runs in order to fill their orders and a number are booked ahead, which, with even a semi-good construction season, will insure them a steady grind all summer.

Taken as a whole there has never before been a better outlook for the brick business in this section and with a promise of top-notch prices and the next few months will doubtless be record ones for clayworkers.

The Independence Brick Co., of Independence, Kan., have made a proposition to the people of that city to install a roofing paper mill there and operate it in connection with their brick plant if the city will buy $5,000 worth of stock.

One of the largest brick plants in the country is that of the Buffalo (Kan.) Brick Co., which employs 200 men and last year turned out 27,000,000 brick.

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# SEGER'S COLLECTED WORKS

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"Seger's Collected Works," as issued by us, contains a collection of articles by Seger, that we think to be of the utmost value to our readers, and you could make no more profitable addition to your library shelves than by securing a copy of this work. Some of the articles are as follows: "Chemical Constitution of Clays," "Manufacture of Brick from Pulverized Clay," Some Investigations with Regard to the Coloring of Brick," "Drying in Inclosed Rooms," "What Properties Render Clay Especially Suitable for the Manufacture of Clinkers and Paving Brick," and many others. Write for Table of Contents.

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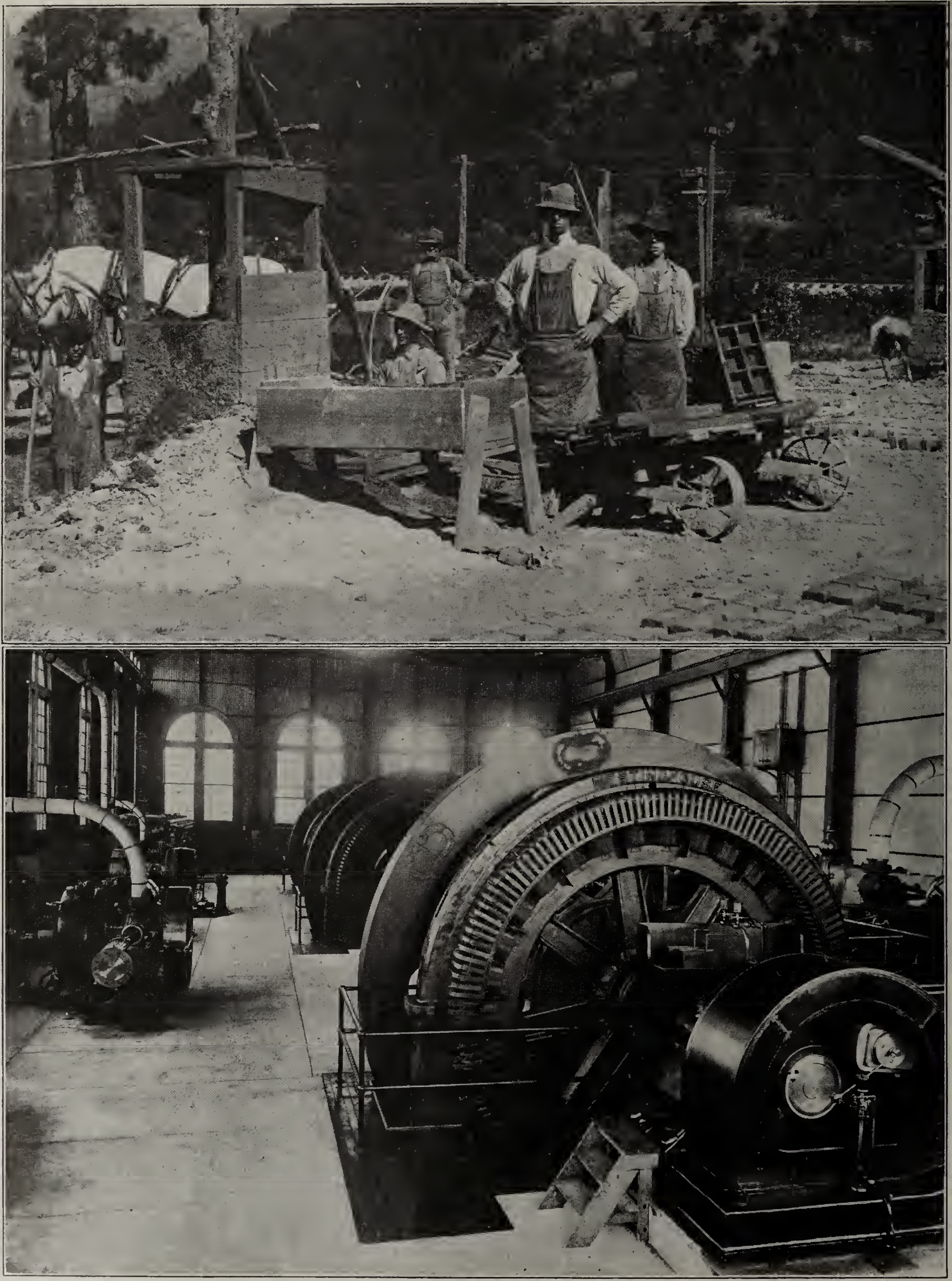

**THE OLD POWER AND THE NEW**

There are yet yards to be found throughout the country where motive power is supplied by the old blind white horse; but modern plants are rapidly adopting the 20th Century method. Many of them are equipped with splendid electric power

VOL. XXXVIII—No. 10
BRICK
AND CLAY RECORD
MAY 15, 1911

# AGE OF ELECTRICITY

## The Practical Application of Electricity to Clay Working Operations Marks a Forward Movement, Making Assured a Glowing Future for this Rapidly Developing Industry

No material agent has been more instrumental in furthering the progress of industrial development in this country than electricity. In every field of manufacture and industry we find at the present time electricity playing a most important part. It appears, however, that only within the past few years have the manufacturers of clay products awakened to the possible advantages to them through the application of electricity to their clayworking operations. The merits and advantages of electric power have become so apparent, however, that the idea seized upon by the clay manufacturers of the country has spread with much rapidity and today a large number of our clayworking plants are not only lighted by the electric fluid, but receive their power from the same source. Some of the most modern and up-to-date plants in the country have been electrified and in no case has the result been unsatisfactory.

Modern Electric Power and Haulage Equipment at the Famous Rose Plant on the Hudson River.

The peculiar conditions existing in clayworking plants make electric power especially suitable for the operations involved. Much of the machinery in such plants is widely separated, isolated, or located in such manner as to make transmission from line shafts difficult or impossible, resulting in a large amount of lost power through transmission. In addition to the driving of the machinery, electricity is especially available in such plants for the operation of industrial railway systems and haulage of clay from pit to works, and the operation of electric shovels and digging machines and of isolated pumps, fans or other equipment.

The application of electricity to clayworking operations has now been sufficiently demonstrated to permit of a comparative cost of operation being made between steam and electricity, and while conditions so vary that no general rules can apply to any particular case, yet it is now an easy matter for the clay products manufacturer to estimate with accuracy as to whether steam or electricity would be the most economical power for his needs. In many cases central station power has been found available, while in others clay products manufacturers generate their own electricity with steam-power plants.

The matter of direct electric drive is one which will bear the careful investigation of clay products manufacturers and is a subject which is arousing much interest at this time. It is for this reason that the publishers of "Brick and Clay Record" have prepared this special issue, devoted largely to the application of electricity to clayworking plants.

The advantages of electric drive are now so generally recognized that the main question to be considered by the manufacturer is whether he can purchase his power from a power company at a lower cost than he can generate it in his own plant. Every plant has conditions peculiar to it, which cause special requirements and the manufacturer entertaining the idea of electrification should make his plans very carefully. Manufacturers, drying with steam, might find it no economy to adopt electric drive because of the necessity for steam generation for drying purposes. On the other hand, under certain conditions it might be found possible to equip for electrical drive independently of the steam plant required for drying or other purposes. In investigating the question, those plants which operate throughout the cold months should also consider the cost of necessary heating of their buildings independently of the power plant.

In considering the electrification of clayworking plants the following advantages are to be noted:

First: More economical arrangement of plant.

Second: Decreased maintenance cost.

Third: Higher efficiency of plant operation.

Fourth: Possible increase in output.

Fifth: Possible reduction in power cost.

The question of mobility of plant is one of the most important considerations. Through the use of electric power and individual electric drive, each machine becomes an independent unit and can be placed wherever most desirable without thought of the location of the line shaft and can be placed at any angle in relation to any other machine. The various machines can also be separated to any extent as the location is simply a matter of convenience and efficiency.

Powerful Electrical Equipment at the Plant of the Columbus & Hocking Coal & Clay Co., Kalemacher, O.

Another claim of the electric enthusiast is that of more certain and uninterrupted operation of the plant. The matter of steam boiler and engine troubles is eliminated, as the required current is always ready for use. Motors maintain practically constant speed throughout their operating range and this speed is not changed through changes in the loads through starting and stopping.

In considering the subject of electricity and the wonderful industrial development brought about through its application, we can fittingly quote the words of Mr. George Westinghouse in an address delivered recently before the Southern Commercial Congress at Atlanta, Ga. We quote Mr. Westinghouse as follows:

"Had a Jules Verne sought to imagine some universal servant of mankind, he could well have depicted some magic agent which would apply nature's forces to do man's work; which could take the energy of her hidden coal, of the air, or of her falling water, carry it by easy channels and cause it to give the light of a million candles, the power of a thousand men, or to move great loads faster than horses could travel, to produce heat without combustion, and to unlock chemical bonds and release new materials. No such wonder was pictured by the imagination of the seers of the past; and yet a subtle force which transcends the powers of the imagination is daily doing all these things—a vitalizing force, which is already stimulating the physical recovery of the South; and if we still think of the present as the era of steam and steel, unquestionably the coming epoch, whose dawn we are privileged to witness, will be known as the Age of Electricity. First the toy, and long the mystery of the scientist, electric power is now a familiar tool for the accomplishment of the work and the increase of the comfort and pleasure of mankind.

"During the 25 years in which I have been intimately interested in the electrical art, a development has been witnessed which has surpassed the most optimistic predictions. At the beginning of this period it was the general conviction that electricity would be limited to local use in the lighting of densely populated districts or the supply of power to adjacent factories.

"At that period, however, there had already been developed and operated electric arc lighting circuits of high voltage, extended over rather large areas, with the pressure upon the wires of from 2,000 to 7,000 volts, which practically demonstrated that considerable electric power could be cheaply transmitted if means could be found to utilize safely high-voltage electric current for power and light and for other purposes; but such means were not then known.

"It often happens, when something is greatly needed for any great purpose, that as a result of a lively appreciation by many of the existing need, there arises in due course, invention or discovery which meets the demand, and so it was in the matter of invention and discovery which gave us a simple static device, consisting of two coils of copper wire surrounded by sheets of iron, which could, without an appreciable loss of energy transform alternating electric currents of high voltage and small quantity, dangerous to life, into low voltage currents of large quantity, safely available for all power, light, heat and other purposes."

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The Sand Lime Brick Co., of Philadelphia, has sold its plant to the Philadelphi Sand-Lime Brick Co., also of Philadelphia.

# ELECTRIFYING BRICK WORKS

## The Progress and Development of Electric Power and Its Adaptation to the Clayworking Industry

### By T. E. Simpers, of the Westinghouse Electric & Mfg. Co.

While the application of electric power to industrial service is comparatively recent, it has already won recognition and is making rapid progress. Manufacturers of steel were the first to recognize and make use of the considerable advantages obtained by driving machinery electrically, and this industry now consumes more electrical power than any other. Since the first moves toward the industrial application of electricity were made in steel mills, other industries have followed the example and now practically every recognized industry. cement, textile, mining, metal-working, clay-working, etc., use electrical power for the manufacture and transportation of a very large proportion of its product.

The manufacture of brick and tile is probably the oldest of all industries, dating back to early Biblical periods. It would seem, however, that the antiquity of the industry had not brought about a complete knowledge of the possiblities of scientific manufacture and management, for it was not until a few years ago that the clay-working industry departed from methods which had been in use for hundreds of years. The first steps toward electrically operated clay-working plants, and therefore the possibility of economically operated plants, were probably made because of the solicitations of central power plants desiring to sell power. It has been upon the service and publicity of central power plants that the extension of electric drive in clay-working plants has been dependent. This has been because of the fact that the power requirements of such plants are usually of such amounts that a power plant, generating a small amount of power for one consumer cannot make it as cheaply as a central power company, generating a large amount of power for a number of consumers, can sell it.

Within the past few years, the territory served by central power companies has increased to a large extent, and in most localities the clay-worker, with a plant making 25,000 to 100,000 brick per day, can buy electrical power at a rate which will allow the manufacture of product more cheaply than can be secured by any other means of production.

The selection of the means of securing power for a large brick plant, making several hundred thousand brick per day, or a smaller one, which is located so that it cannot obtain a favorable power rate from a central station, is problematical and one which needs complete investigation as to railroad facilities, water, coal, and cost of attendance, before making a decision as to power installation.

In the consideration of the equipment of an existing plant, which has already some other method of drive than electrical drive, there are a number of factors that require careful consideration in comparing power costs. In plants operating with permanent kilns, the waste heat from which can be utilized for drying, electric power offers advantages over the central engine drive in many cases. One saving in particular, is in regard to the operation of the blowers and exhaust fans which have to be in service continuously 24 hours a day when there is a charge in the kilns. As the main portion of the plant is operated only during the day time, or approximately 10 hours, it is quite an expense to provide steam power for the engines to drive the blowers and fans the remainder of the 24-hour period. With electric drive, however, this work can be accomplished at a minimum expenditure of energy and cost, as all departments of the plant, with the exception of the kiln department, can be shut down during the greater portion of the time. When temporary kilns are used, it is necessary to provide steam for the drying process and consequently it is necessary to operate a portion of the boiler plant during the period when the other portions of the plant are idle. This condition necessarily reduces the advantage offered by motor drive to some extent, but even in this case motor drive will compare favorably with steam engine drive from a power cost standpoint, and the other advantages as noted previously result in increased output at lower costs.

With the installation of a central power plant and temporary kilns, the plant is subject to the same disadvantages as noted above, that is, a portion of the boilers have to be in operation when the remainder of the plant is shut down for drying purposes. This disadvantage, however, is about on an equal basis no matter what method of drive is selected, and when the advantages for electric drive, as noted below, are taken into consideration, any other method of drive than electric drive is seen to be working at a disadvantage.

The clay-working industry is similar to many others in that the future depends largely upon the economies and refinement of manufacture.

The many advantages and the great resourcefulness of electricity have been important factors in making progress along these lines and afford:

More economical arrangement of plant.

By the application of individual motors, the various departments of the plant can be located and arranged to the best advantage for operating without the limitation of arrangement as imposed by any other method of drive which requires belt connection.

Increased output.

When the various machines or departments are operated by individual motors there is a greater assurance of continued operation as compared with a central engine drive, in which case, engine trouble means a shut down of the entire plant. Motors also maintain practically a constant speed throughout their operating range, which results in an increased production as compared with a plant driven by a single engine where the speed varies not only with the boiler pressure but also with the variation in load. Also the most practical method of drive for auxiliary apparatus such as brick setting machines, haulage locomotives and other traveling machinery is by means of electric motors.

Electric motors are of simple construction and even for the most severe classes of service are very durable. Due to the fact that they can be applied at the closest position relative to the driven machine, the connecting apparatus such as belts, gears, etc., are reduced to a minimum. Fuses or circuit breakers are installed in the motor circuits as a protection against severe overloads, such as caused by clogging of the various machines which might cause damage to the motor and the driven apparatus. The possibility of shut downs, due to machine breakage, is thereby greatly reduced.

High efficiency of plant operation.

By connecting the motors at the nearest available point, line shaft and belt friction is reduced to a minimum. The various motors operate at good efficiency as they are each working practically at their rated load. In the case of a central engine drive, a shut down of part of the machinery means a reduced engine load, with a reduction in operating efficiency due to this cause and also due to the fact that the proportional line shaft friction load has increased.

Reduction in power costs.

The largest factors in the reduction of power costs, as offered by electric drive compared with a central engine drive are, elimination of belt and line shaft friction, elimination of losses, due to a part only of the plant operating or the entire plant operating at light load, decreased attendance and increased amount of product with the same machinery.

The electric drive offers many advantages which are worthy of consideration in making the outlay of any clayworking plant. The first cost of an electrically driven installation may be greater than the installation of a central engine equipment; but the analysis of a case under consideration will show the merits of the electrical drive. Economy of operation in many big plants has been accomplished by electric drive, and progressive clay-workers cannot afford to neglect an investigation of the advantages which may be obtained by electric drive in either the installation of a new plant or the question of securing a less cost of product by the change of an existing plant.

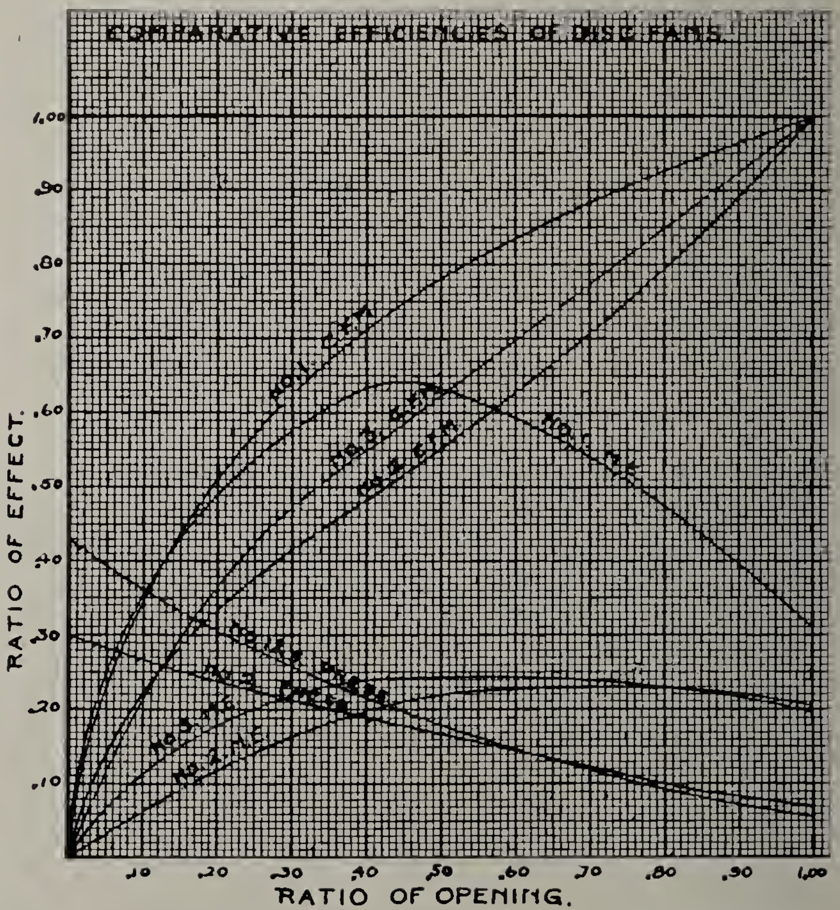
## VENTURA FANS.

For about four years the American Blower Company, Detroit, Mich., have been developing a new curved blade disc fan, and have obtained some wonderfully high mechanical efficiencies, besides retaining every quality that should make the fan attractive to users, motor manufacturers or dealers. This new fan is called the "Ventura." It has ten broad blades of the proper dip or curve to produce large volumes freely or against pressures and so efficiently that the power consumption is away below the usual. Patents on the constructional features have been applied for.

The "Ventura" fan runs at speeds as high as any other fan of the disc type, if not higher, has remarkable capacity to overcome resistances, and throws an air current straight ahead. In fact, the air as it leaves the fan has a tendency to bend inward for a considerable distance before it begins to expand. This is contrary to the action of any other disc fan on the market. To illustrate this feature—one of these fans can be set 16 ins. away from a hole in a box and discharge more air on the other side of the opening than the fan itself handles, due to the siphon action of the air as it passes through the opening, drawing in air along the face of the box.

Disc Ventilating Fan.

The accompanying chart shows the relative capacity and mechanical efficiency of the new "Ventura," as compared with two of the best known makes of propeller type fans used most extensively by motor manufacturers prior to the introduction of the "Ventura" fans.



Curve No. 1 shows the "Ventura" fan. Curves Nos. 2 and 3 are of the competition fans above mentioned. These curves are absolutely correct and were plotted from exhausted tests under like conditions.

Particular attention is called to the mechanical efficiency of "Ventura" fans, which run as high as 64 per cent, whereas the best of the other two types shows a maximum of 24 5-10 per cent and the other 23 per cent maximum.

## SERIOUS MINE ACCIDENT.

We are sorry to announce that General Manager Mr. Miller, of the Denny-Renton Clay and Coal Co., Seattle, Wash., was quite seriously injured while making an inspection trip of his mine at the Taylor Works, when he accidentally walked into a "shot." He is in the hospital, and while he is improving he will be there for some time to come. The general mining superintendent, Mr. S. A. Toomes, was instantly killed by the accident, and the local manager, Mr. J. E. Keenan, of the Taylor Works, was seriously injured, also the assistant mine superintendent, Mr. Lawton, both of whom are recovering. It will be remembered that the Denny-Renton Co. has recently purchased the large holdings of the Western Clay Manufacturing Co., at Portland, for a consideration approximating $1,000,000.

## SPRING BARGAIN SALES.

Attend the bargain sales on our counters in our "Classified Ad Department." You will probably find something there that you need. If you do not wish to buy, but desire to sell something, send us an ad. for our next issue, June 1st.

# SOME ELECTRICALLY EQUIPPED PLANTS

One of the building brick plants of Illinois, which has been successful in the use of electricity for motive power is that of the Standard Brick Co. at Belleville, Ill.

The plant is especially well supplied with shipping facilities having access to the I. C., Southern, and L. & N. R. R. The main building is 40x60 ft. in which is located the electric motor, and the two 4-mold Berg presses and one 2-mold Hammer press, with a total capacity of 52,000 brick. The clay is a yellow surface clay, similar to the St. Louis clays, 25 ft. deep and all above grade. This clay is secured by stripping the over burden 6 to 8 inches. The clay is cut up with a disc harrow and when sufficiently dried is harvested with five Quincy clay gatherers and stored in sheds.

Enough clay is stored in the sheds, in the summer and fall, to last until the weather permits gathering again in the spring, about the last of April.

View of the Standard Brick Co.'s Plant, Belleville, Ill., Showing Up-Draft Kilns.

From the shed the clay is wheeled and dumped into a square roll feeding machine which delivers the clay automatically and uniformly into a 42-inch Fernholtz pulverizer. It is then elevated and passed over a 2 by 16-foot stationary incline screen, made at the plant, from which it is delivered into what is generally known as clay mixers, which are placed directly above each press.

The brick are taken directly from the machines to the kilns on brick trucks, each holding 80 brick. The brick are set 40 high, in the up-draft kilns and 32 and 34 high, in the down-draft kilns. Seven men constitute the gang for each 4-mold press, making 21,000 brick.

The brick are water smoked for seven days and then burned seven days. Wood is used for the water smoking and soft coal for burning. The plant is lighted by electricity, making it possible to operate both day and night. The kiln battery is composed of four permanent up-draft kilns and two down-draft of the Alsip pattern. The output is dry pressed red building brick in all grades.

This company began operating in June, 1903, with one 4-mold dry press machine and three up-draft kilns, since which time they have increased the capacity from time to time. The company reports business prospects fair, employing about 35 to 40 men throughout the year.

The officers of the company are C. H. Starkel, president; S. H. Alsip, vice-president and general manager, and E. P. Raab, secretary and treasurer.

## ELECTRICALLY DRIVEN SAND LIME PLANT.

The plant of the Spokane Pressed Brick Co., located at the northern edge of the city, 3½ miles from Hillyard, Wash., has just started operation and a high grade of sand-lime brick is being manufactured which is received with popular favor by local architects and builders. The company is a closed corporation and incorporated for $150,000. Its officers are William Hoare, president; Wm. K. Daniels, vice-president; V. W. Brasch, treasurer; John L. Trone, secretary, and James F. Elliott, general manager. The plant—equipped by the Anderson Foundry & Machine Works and installed by P. K. Tucker, master mechanic, is a single unit plant with a capacity of 20,000 brick for ten hours run, so constructed that the output can be doubled by adding another press and hardening cylinder,—operated by electricity and modern throughout. The company owns 40 acres of fine bank sand high in silica and unlimited in quantity. The price of face brick is $16 per M., f. o. b. Spokane, while the common product is sold to meet the price of clay brick. Operations will be confined to Spokane and the immediate district. The company has a 40-acre deposit of silica sand, which, it is estimated, has a depth of 200 feet.

The equipment of the plant consists of a large four-mold dry press, weighing 32,000 lbs., with a capacity of 2,500 brick an hour; a big tubular mixing apparatus, having sufficient capacity for two presses; four electric motors to furnish power, one 50 h. p., one 35 h. p., and two 20 h. p. motors.

The brick are cured by steaming in a steel cylinder 66 ft. in length and 6 ft. in diameter, connected with a boiler of 150 h. p. capacity.

In the process of manufacture, sand is mixed with lime, shipped from Idaho, the proportion of lime being about 7 per cent. The mixture is slightly moistened and then put into the press, where it is subjected to a pressure of 50,000 pounds to the square inch.

Electrically Operated Plant of the Spokane (Wash.) Pressed Brick Co.

The main building was enclosed with boards during the cold weather, while the machinery was being installed, but the walls are now being replaced by brick, made at the plant.

## ELECTRIC DRIVE IN WYOMING.

Electrical equipment for brick plants is gaining in favor throughout the country and in the far west, in Cheyenne, Wyo., has been installed in the plant of the Cheyenne Brick Co. The electrical equipment at this plant consits of one 50 h. p. G. E. motor, which drives a 9 ft. dry pan, conveyor, mixer and elevator. The motor is belted to line shafting which conveys the power to the various machines by means of belts. A 10-h. p. G. E. motor drives a 4-mold Berg press. The dies on the press are heated by means of G. E. flat iron cartridge heaters, which Mr. Irving Dumm, the manager, says have proven very satisfactory. It eliminates all the bad features of steam heat and the danger of freezing die blocks. Mr. Dumm states that they have found electric power far cheaper and much more convenient than steam power, as it is always ready for use when needed and in case of a break-down, the power can be cut off immediately. He also states that by installing motors the first cost of installation is a great deal less, not only in equipment, but in the size of building necessary for the various machines.

A continuous kiln with 16 chambers, each chamber holding 20,000 brick is used at this plant. Southern Colorado slack coal is used for burning and the quality of brick produced is very satisfactory. The output is about 40 per cent face brick and the balance, common brick with less than one per cent waste. The kiln is very simple in construction, being composed of two arches 106 ft. long by 17 ft. wide, one arch built against the other with a cross over the opening at each end, to allow the heat to travel from one tunnel to the other. All firing is done from the top and one man on each shift does all the firing.

Plant of the Cheyenne Brick Co. which is Electrically Operated.

Another View of the Cheyenne (Wyo.) Brick Co.'s Plant.

# CHAINING NIAGARA

One of the greatest modern features of the industrial development of Canada is the vast work being accomplished by the Hydro-Electric Power Commission of Ontario, in the supplying of electric current to industrial enterprises throughout the Province from the vast resources of Niagara Falls.

Laying the Underground Cables.

The success which this commission has had in transmitting the power of Niagara for long distances, gives us hope that even a greater territory may be covered by similiar means in both Canada and the United States. While American interests have succeeded in producing an immense amount of electrical energy by harnesssing the power of Niagara, yet the currents thus provided have not been transmitted to as great distances or so thoroughly distributed as has been the case in the Dominion.

The methods and extent of the operations of the Hydro-Electric Power Commission are of particular interest to manufacturers of brick and other clay products in Ontario, because of the possibilities offered in the reduction of costs. Already a number of enterprises have connected up with Hydro-Electric current and have found same of great economy, to say nothing of the many other advantages derived through electrification. In a number of cases, the cost of power has been reduced to a figure representing eight to ten cents per thousand brick manufactured. It is probable that many other brick manufacturers in Ontario will take advantage of this cheap power.

The Hydro Electric Co. is a large consumer of Terra Cotta and Brick.

The accompanying illustrations show better than words the elaborateness and perfection of the equipment by which powerful currents of electricity are transmitted from Niagara Falls to various points throughout the Province of Ontario. It is to be regretted that no pictures are available of the immense generating plants located at Niagara Falls. The construction work involved in the transmission system and in the various substations throughout the province is most extensive and involves the consummation of a considerable amount of clay products, including brick, terra cotta and conduits.

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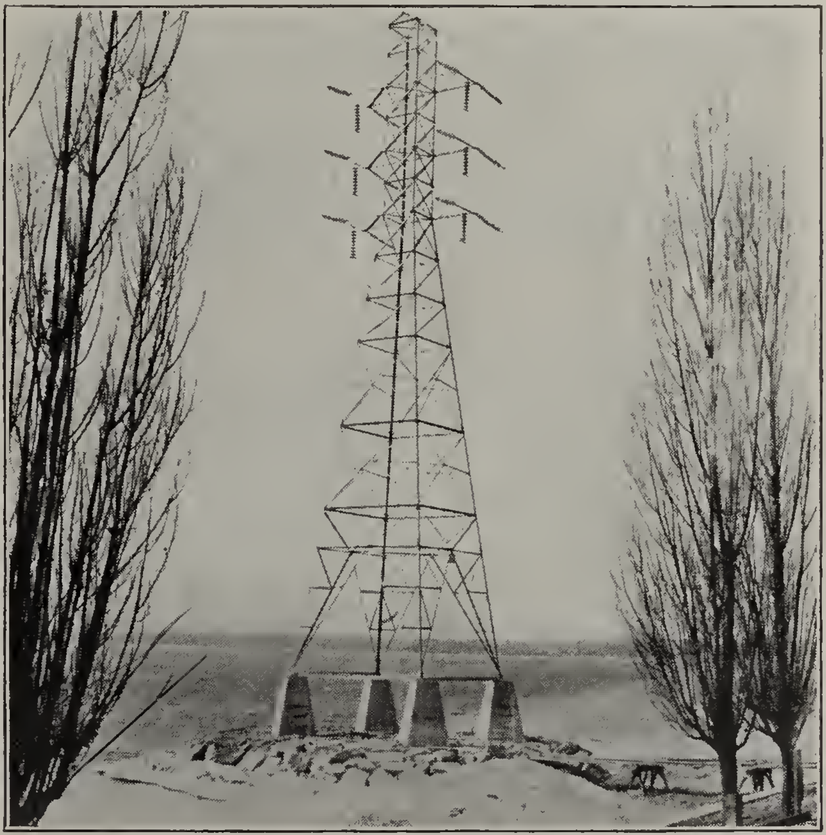
## ELECTRIC POWER IN NORTH DAKOTA.

Mr. Louis Campbell of the Red River Valley Brick Co., at Grand Forks, N. D., expresses the opinion that the best kind of power for brick plants is electricity, which power can be obtained at a reasonable cost in most localities.



One of the Electric Transmission Towers.

This company has maintained very careful records of comparative costs between steam and electricity for power purposes and some of these figures are included in the following statements. It is to be noted that in this case two machines are operated from one engine and in such cases it appears that a steam plant is a cheaper producer of power, as it will be seen that the cost per thousand for steam power is only 15 2/10 cents as against 20 6/10 cents for one of the electric motors and 18 3/10 cents for the other motor, while the average cost per hour per h. p. is practically the same in all three.

At this plant the engineer is required to make report each day of the number of hours the engine runs, also the number of brick made by each machine. Every pound of coal is weighed each day that is used in the furnace and an independent water heater is on the pipe that runs to the boiler. The oil and waste is all charged to the engineer and the average per day is taken at the end of the season.

The electric motor requires very little attention and the cost for oil and waste is very small.

One of the electric motors is a 35 h. p. used for hauling clay cars up a steep grade while the other motor for driving the brick machine is only 30 h. p. and is not submitted to extra loads.

In a recent communication Mr. Campbell states: "The writer's personal opinion as to the best kind of power for a brick plant is electric where you can get A. C. power for three cents and where you have only single units to operate.

In our case with our steam plant, where we operate two machines from the one engine, the steam plant is the cheaper of the two, as our yearly records show that the cost per M. for steam power is only 15-2/10c against 20-6/10c for one of the electric motors and 18-3/10c for the other while the average cost per hour per h. p. is practically the same in all three.

Our engineer is required to make report each day of the number of hours each machine runs and the number of hours the engine runs; also the number of brick made by each machine. Every pound of coal is weighed each day that is used in the furnace and an independent water meter is on the pipe that runs to the boiler.

We use very little wood, our reports for the year showing that there were only 2¼ cords used during the season.

The oil and waste is all charged to the engineer and the average per day is taken at the end of the season. We pay our engineer so much a month and board.

The electric motor requires very little attention as the cost for oil and waste is very small.

One of our electric motors is a 35 h. p. using an average of 33 h. p., as it was required to haul our clay cars up a steep grade, while the other motor is only a 30 h. p. A. C. and has no additional hauling outside of the brick machine.

## WORKING DAY AND NIGHT.

It is reported that the plant of the Clymer Brick & Fire Clay Co., Clymer, Pa., is working day and night turns, in order to keep up with the demand for its product. New kilns are to be erected which will greatly increase the capacity of the plant. The company employs about 200 or more men.

## ENLARGES SHOPS.

The Murray Iron Works Co., of Burlington, Iowa, are just completing an extensive addition to their boiler shops in the shape of a steel frame building, 140 x 120 ft., with a large traveling crane down the middle and smaller cranes on the sides. This will enable these works to produce more water-tube, tubular and fire-box boilers in the future than they have been able to in the past.

## EXTENSIVE IMPROVEMENTS.

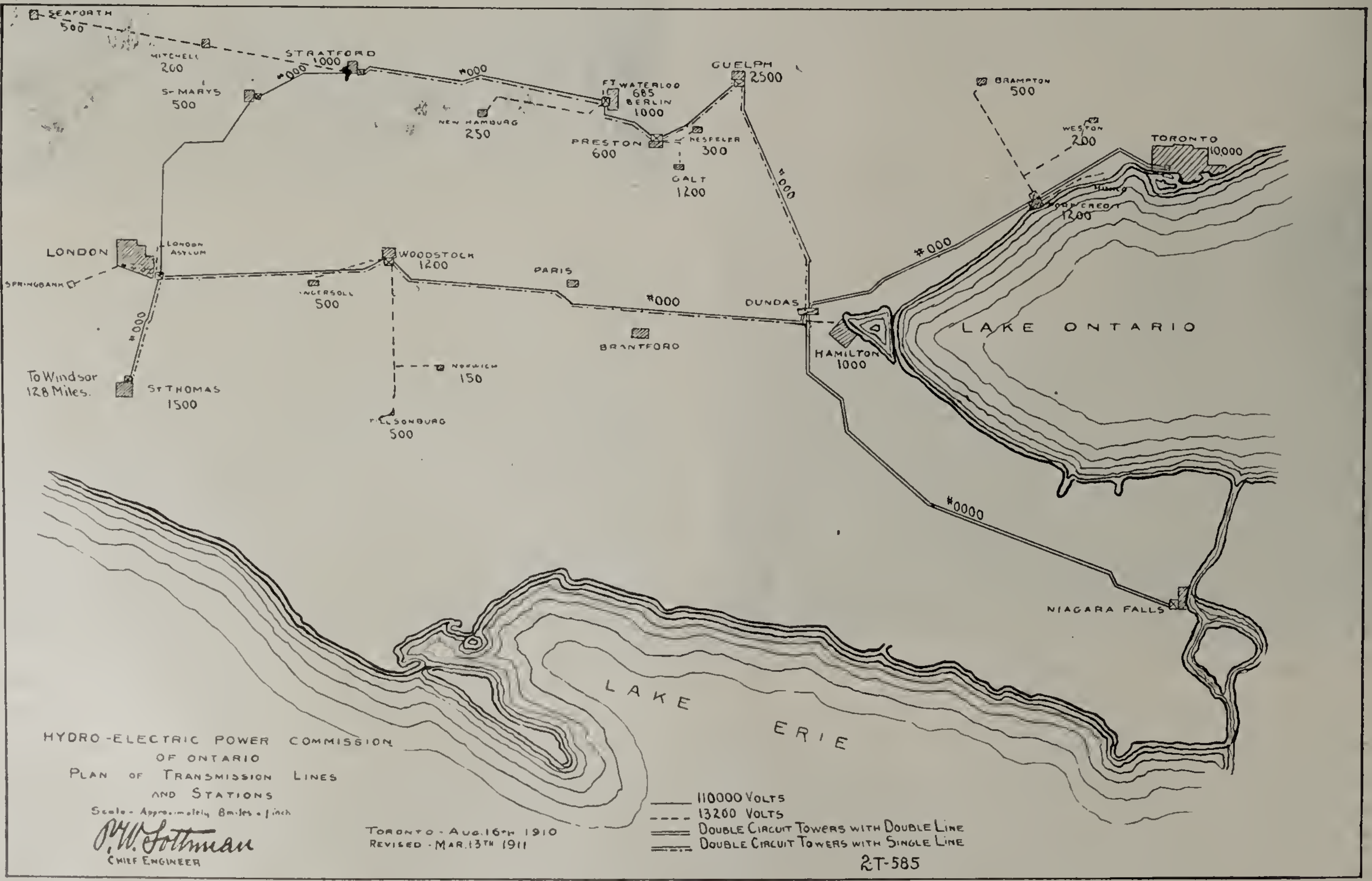
The Excelsior Brick Co., Fredonia, Kan., one of the largest plants in the Southwest, are making extensive improvements. They are building a 64-chamber Haigh continuous kiln, with a capacity of 100,000 brick, and installing a 32-track waste heat drier, designed and furnished by the L. E. Rodgers Engineering Co., of Chicago, Ill.

## NEW HEAD OF GEOLOGICAL BOARD.

The brick and tile interests of Iowa are urging the appointment of Prof. S. E. Byer of Ames as head of the Iowa Geological Survey to succeed Prof. Calvin, who died recently. Mr. J. B. McHose of Boone, chairman of the legislative committee of the State Brick and Tile Association, says that the sentiment is practically unanimous that Mr. Byers receive the appointment.

## NEW USE FOR TERRA COTTA.

Terra cotta is to be used instead of copper for supporting the glass in the large windows which occur at the upper floor levels of one of the tall office buildings about to be erected in the lower section of the Island of Manhattan, N. Y. The terra cotta will be painted green and, according to the architects, its use gives the same effect as copper and, while equally strong, is less expensive.—The Building Age.



Map showing extent to which the Power of Niagara has been Transmitted throughout Ontario, Canada.

Energy of Niagara chained to Supply Power for a Nation. One of the High-Tension Stations of the Hydro Electric Co.

Clay Drain Tile Plays an Important Part in the Construction Work of the Hydro Electric Co.

Thousands of Tons of Clay Conduits Carry the Underground Wires.

## ADVANTAGES OF ELECTRIC POWER.*

We are living today in the age of electricity. From the mules and oxen of our grandfathers' time, which were replaced by steam, we have again forged forward and the hum of the electric motor is heard almost everywhere. Scarcely a manufacturing plant of any description today, but what is at least partially equipped with electric power. There must be some reasons beyond experimenting that keep great factories such as the Canadian General Electric, Westinghouse, and many smaller ones working overtime to supply the demand for motors and appliances and it is to the end of finding and answering some of these that this paper is written. In some parts of Ontario where the "juice" is humming on overhead wires the old threshing engine or even the horse power is still used in making brick. The installing of a motor is simple and inexpensive as compared with a steam plant and let me say here, fellow clay-workers, we are engaged in one of the oldest and greatest industries the earth has seen and the "best" is none too good for us.

A point in favor of electricity is its reliability. When properly installed all you have to do is "touch the button" and it will do the rest. An erroneous idea has gone abroad that it is too expensive for a poor man to use, but from statistics and personal experience it is, in my opinion, the cheapest power a man can have in his yard, especially if he is within reach of the "Hydro Electric."

Note also your independence when your plant is electrically equipped. You are not subject to the whims of engineers and firemen and gazing down the road half an hour after the plant should have been in operation to see if that man is coming today, you can train a man in an hour to look after it. Evenness of power is another feature worthy of note as when dumping a car of clay into your pug mill unless you have plenty of power your speed will slacken until partially ground up, but not so with the motor of proper capacity, it is always "on the job."

A great many other reasons could be advanced for motor power versus steam, such as comfort, cleanliness, safety, etc., as a jolt of 550 volts will put you in good shape for a day's work.

### Doubting Thomases.

As soon as Mr. Millar took his seat a member asked if he had ever received a 550 volt shock, and on being informed he had not, advised him to be careful not to.

Vice-President Ball pointed out that the most suitable power depended on conditions existing where the installations were to be made. He had recently figured on a plant where it would have been necessary to bring power seven miles, if electricity were to be bought. When the cost of transmission line, motors, transformers, etc., had been figured out it made his hair stand up. If this type of power plant had been installed there would be very little left for the rest of the plant.

A Voice—Very little hair?

"No," replied Mr. Ball, "little capital." The first cost of the installation must always be considered, for every cent invested should earn interest, which is a charge against the plant. He thought Mr. Millar had been inclined to compare an up-to-date electrical plant with a worn-out steam plant. If a modern steam plant were installed and the waste steam were used in the drier, in many cases steam would be found the cheaper. In other cases, of course, electrical power was assuredly the best to install.

Mr. Ball thought Mr. Millar made a mistake in minimizing the danger from electricity. Why it was the most modern danger, so much so that in New York the state used it to put murderers to death.

Mr. J. S. McCannell was glad to hear the discussion. He wanted all the information possible regarding power plants, as he was contemplating further installations.

### Found Electricity Cheaper.

Mr. Dan. Lochrie had used electrical power for five years and found it cheaper, cleaner, and fully as reliable as steam. A big advantage was that if it rained and operations were to be stopped, turning a switch would stop all charge, and if the rain cleared away the power would be started up at once. With steam the head of steam had to be kept up, thus using fuel needlessly.

Mr. Wm. Pears had used steam for many years and had found steam power safe and reliable, but for the sake of economy had installed electricity and had cut the cost of power in manufacturing to less than half what it was before.

## BENSING CLAY CUTTERS.

A valuable addition to clay trade literature is the little booklet which is issued by the J. D. Fate Co., Plymouth, O., entitled "Side Lights on Clay Cutters," devoted principally to descriptions and illustrations of the various types of the Bensing automatic cutting tables. The booklet shows in a remarkable way the large variety in which these tables are manufactured, there being provision made for every need of the clay industry along this line, including end and side cut brick tables in various styles for varied purposes, tile cutting tables of a number of different types, tables for the cutting of block and hollow ware, roofing tile cutters, delivery tables and other varieties.

A copy of this cutter booklet will be sent to anyone upon request.

## AN ENTERPRISING KANSAS CONCERN.

Shown herewith is a view of the shale pit of the Tyro Vitrified Brick Co., at Tyro, Kans. This company manufactures a high quality of face-paver and feel that they have one of the best shale deposits in the country. In excavating their material they use a No. 2 Thew steam shovel. The Tyro company has not been troubled with shortage of gas and has been able to operate during the cold weather. This plant has a capacity of 15,000,000 common brick per year.

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*Paper read by Mr. C. A. Millar, of the Standard Brick Co., Toronto, Can., before the Canadian convention, held in Toronto, Dec. 14-16, 1910.

# STARTERS FOR INDUCTION MOTORS

## A Device Which is of Interest to All Electric Operators in the Manufacturing Field

The rapid growth of alternating current systems of distribution enables such a wide application of induction motors that the development of a satisfactory starting device is of interest to all operators in the industrial and manufacturing field. This is particularly true in the case of squirrel-cage induction motors, which are generally recognized as the best electric drive for machines operating at uniform speed.

In order to use this type of motors to the greatest advantage, however, and to permit the application of the larger sizes on mixed lighting and power circuits, it is necessary to employ a starting device which will reduce to a minimum the current taken from the line by the motor at starting. Otherwise the resulting voltage variations would be of sufficient magnitude to impair the proper regulation on such circuits.

Since the design of the squirrel-cage motor is such that a reduced starting current can be obtained only by impressing a diminished voltage on the motor terminals, it is clear that either resistances, reactances or compensators may be employed for starters. Motor operators long have recognized, however, that resistances and reactances are not only inadequate for obviating objectionable line disturbances, but fail to reduce the current taken from the line below the amount actually required for starting the motor. Therefore, great effort has been exerted to develop a starting device which, while embodying a more effective electrical principle, is also susceptible of comparatively simple arrangement for automatically protecting the motor against overloads and exposure to voltage failure, and for compelling the operator to start the motor properly, regardless of the amount of his experience in such matters.

The thoroughness with which these qualifications may be obtained by correct design and careful construction is shown in the improved hand-operated starting compensators recently placed on the market by the General Electric Co.

These compensators, which are designated by the symbols CR-117, consist of an inductive winding with sub-voltage taps, and a switch for connecting the taps to the motor. They are of the single-step type; that is, the motor is thrown directly from the starting tap onto the line, but several taps are provided for giving a number of reduced voltages, any one of which may be selected, by trial, as suitable for the requirements of a particular case, and then subsequently applied at all times by permanently connecting the corresponding tap to the switch.

In operation these compensators permit the application of a reduced voltage to start the motor and bring it up to speed, the starting current being one-half the amount taken by the motor through a resistance or a reactance, at an equivalent reduced voltage, or one-quarter the amount the motor would take if it were thrown directly on the line. Consequently, by employing compensators of suitable capacity it is entirely practicable to use the largest size of motors on mixed lighting and power circuits without creating line disturbances of sufficient magnitude to interfere with the proper operation of the lamps.

In the design and construction of the CR-117 compensators, every precaution possible has been taken to insure the proper starting and effective protection of the motor.

In order to prevent any possibility of the motor being thrown on the line through the ignorance or negligence of the operator, the "off" position of the switch is located midway between the starting and running positions and an automatic latch is provided for holding the operating handle in the off position, thereby preventing the operator from throwing it forward into the running position, without first throwing it into the starting position.

The automatic protection provided comprises a system of spring-actuated release levers attached to the switch shaft, and an equipment of no-voltage and overload relays, which operate in conjunction with each other and with the hand-operated mechanism.

The motion of the operating handle either toward the starting or the running position is always opposed to the tension of the spring actuating the release levers; consequently, if the handle is accidentally left on the starting position, the contractile action of the spring returns it at once to the off position, where it is engaged and held by the automatic latch.

The no-voltage and overload relays operate to produce a similar result. In case of voltage failure, with the switch in the running position, the no-voltage relay acts to free the release levers and allows the spring to immediately return the switch to the off position, thus disconnecting both the motor and the compensator from the supply circuit, and protecting them from the returning full line voltage.

The overload relays are inserted in the running circuit. They are designed to remain unaffected by the usual rush of current at starting, but can be adjusted to operate at a slight rise above the normal current, and thus open the no-voltage relay circuit, whereupon the switch will be snapped back to the off position by the action of the spring.

While all automatic or semi-automatic electrical devices are remarkable for the ingenuity displayed in their arrangement, the design and construction of these compensators are particularly interesting for the simple and effective manner in which the very conditions tending to create various troubles are employed to obviate those troubles.

The action of the hand lever under the control of the automatic latch, compelling the operator to follow a prescribed mode of operation in starting the motor and allowing it to come up to full speed, before throwing it onto the running position and thereby connecting it to the full line voltage at the proper instant, cannot be duplicated by any device in which the entire switching operation is accomplished by a single sweep of the handle in one direction. This feature which insures the proper starting of the motor under all conditions and by any person either experienced or non-experienced, combined with the absolute reliability of the protective devices, render these starting compensators practically ideal in their line.

### A GOOD RECORD.

Not less than 4 miles of tile have been put in the town of Geneseo, N. Y., and another mile or so are still to be put in. This surpasses all previous drainage records there and the activity of the Geneseo farmers along this line is believed to be due to the interest aroused on the subject at a recent Agricultural Institute held there.

Plant of the Elkins (W. Va.) Brick Co., Operated by Electric Motor.

## POWER ECONOMICS IN CLAY PLANTS.

### BY W. A. Blonck.

Whenever a brick or tile company contemplates extending its manufacturing facilities or finds it necessary to supersede old style machinery by modern labor saving devices, the question of electric motor drive is of paramount value.

In nearly all clay plants the conveyors, crushers, presses, fans, loading machinery, etc., are always more or less scattered, and since the power transmission by electricity is the most economical form under these conditions, the easy adaptability of the electric motor deserves the closest consideration.

There are at present two classes of electric motors on the market, namely the alternating current motor and the direct current motor; considering the same speed, the former is slightly higher in price than the latter, however, the maintenance in dusty rooms is far less for the alternating current motor than for the direct current motor. The superiority of the direct current motor is to be found in the hoisting and variable speed service.

The selection of the electric transmission system in the clay plant depends, therefore, upon which part of the total power is used for variable speed motors; as a general rule, the power demand of the constant speed motors for presses, pugmills, fans, etc., is far in excess of the hoisting and variable speed machinery, so that in nearly all cases the alternating current transmission system will prove the more satisfactory one.

After the proper choice of the transmission system the question arises: Is it cheaper to purchase the power from a central station company, if such is available, or produce the current by prime movers at the plant?

Although the precise answer to this question depends largely upon local conditions and should be carefully investigated by an unbiased power expert, a general rule can be laid down as follows:

**If the drying of the brick or tile is to be done by steam**, the proper generation of the current at the plant is by far cheaper than the rates per kilowatt hour quoted by any central station company, because under these conditions the engine forms the throttle valve, which reduces the high pressure steam produced in the boilers to the low pressure used in the heating coils for the drier.

As the amount of steam for drying comes always close to the quantity of steam required for the power in brick plants of this character, the cost of current under these conditions is represented by the interest and depreciation of the engine generator equipment plus a slight maintenance charge.

The truth of this reasoning is very clear, when it is stated that steam of 125 pounds gage pressure contains per pound, 1190 heat units, and loses only 40 heat units when expanding in the engine, so that 1150 heat units are delivered to the heating system, while the 40 heat units or not quite four per cent of the fuel plus the aforesaid fixed charges, represent the cost of the electric energy in the plant.

The type of engines for this class of plants could be selected as follows:

For smaller alternating current power stations, up to 250 h. p., a corliss engine belted to a three phase generator and a separate belt to a small direct current generator for the lights in the plant. (The lights taken off from the main generator would be very unsteady when motors are started, it is, therefore, advisable to have power and light generated by separate machines.)

For larger alternating current power stations, over 250 h. p., the generator should be direct connected to the shaft of the four-valve or corliss engine, and if light is to be taken off the same generator, care should be taken that the largest motor does not exceed ten per cent of the size of the generator.

**If the drying of the brick or tile is to be done by waste gases**, which are sucked by large fans from the kilns, it is a better policy to purchase electrical power from the central station company, if the kilowatt hour can be purchased in the neighborhood of three cents; in case the central station company asks for the current four cents per kilowatt hour or more and coal in the vicinity of the plant costs about $2.50 per ton, the production of current at the plant begins to become more profitable than the purchase of leased current.

However, another factor should also be seriously considered in this decision and that is the permanency of the installation; usually the brick plants shift their location when the workable clay supply is reduced to a minimum, and it is therefore often a better policy for temporary plants to work with leased current, than to install a more economical power plant of its own, which must be shifted after a few years of operation; the cost of boiler setting, engine foundation, piping and wiring pertaining to the shifting of this plant will often be far in excess of the larger cost paid for the leased current.

**If the burning of the brick or tile should be done by producer gas**, the electric power necessary for the plant can be very cheaply produced by a gas engine direct connected or belted to the generator; the cost of such power including the interest and depreciation of the engine generator will always be much less than the usual cost of leased current, if the plant has a permanency of about ten years or more.

# CENTRAL STATION POWER SERVICE

### By Geo. H. Jones, of the Commonwealth Edison Company

It is apparent to every one that the use of electric power has been greatly extended during the last few years and it is now generally acknowledged that the electric motor can be advantageously applied to practically every kind of work.

A few years ago the superiority of electric transmission had not been thoroughly demonstrated, so there frequently appeared discussions as to the advisability of using electric drive. Since that time, however, much knowledge on this subject has been gained through actual experience with a great many installations, and the manufacturers have done a great deal for us in bringing out very complete lines of motors covering wide ranges of sizes and speeds to meet every requirement.

The universal experience with electric drive has been so satisfactory that it is very unusual to see installed a new factory equipment in which electric power is not used; as a matter of fact, the attention of engineers and factory men is no longer directed to the discussion of whether or not it is advisable to use electric power in their new installations, but the matters which receive the most of their attention are:

Whether to use individual motors or to arrange their machinery in groups, each group to be operated by a single motor; and

Whether to manufacture their own power or buy it from the central station company.

To the first question it is impossible to give an answer which will apply to all cases, and there has been much written on this subject. The truth of the matter is that local conditions govern in each case, for in some classes of business individual motor drive is the only practical solution of the question. In other classes of business the group drive is the best, and in some other cases the combination of group and individual drive will give the best results.

It is a well recognized fact that in all lines of endeavor this is an age of specialization. In the industrial world it is a rare thing, indeed, to find an industry which manufactures everything entering into its product. As an example, immense industries have been built up to manufacture such insignificant things as carpet tacks.

This condition of specialization applies as well to the matter of the manufacture of power as to other things.

The general public is not ordinarily familiar with the great strides central station companies have been making within the last three or four years, in the way of furnishing and distributing power to industries of all kinds; in fact, some of our largest central station companies are increasing at such a rate that their output has doubled within a period of three years. This business has grown in 15 or 20 years from almost nothing to one of such size as to require an investment of over one billion dollars, exclusive of the money invested in street railroads. This is truly a marvelous showing and could not have been possible if the service rendered to the customers had not been satisfactory. In view of this remarkable demonstration it is certainly a short-sighted business policy, to say the least, to neglect to give the matter of central station power very careful consideration.

Every one, in any way responsible for the operation of an isolated plant, is fully aware of the many inconveniences and sources of annoyance in connection with it and would gladly free himself from this responsibility if he were confident that he could purchase the power at anything like his own figures. It is safe to say that of the total cost of running a large industry, the actual cost of the power is a very small percentage. Under these conditions it would be very foolish for the manager to devote a considerable part of his time and energy to the direction of a power plant in order to save a fraction of one per cent, possibly, of his total cost, while his time and thought could be used to much better advantage in his business. Close investigation will show, however, that the substitution of central station power will not only be a great convenience, but will also prove to be a decided economy. This fact can be proven by actual figures from a great number of installations scattered all over the country.

In the central station business there are a number of factors in operation which make possible the furnishing of electric power in either small or very large quantities at lower prices than it can be produced for in an isolated plant. Stated briefly, some of these factors are as follows:

The use of immense generating plants using turbines having as high capacity as 30,000 h. p. each, consequently effecting the highest economy both in the matter of efficiency of apparatus and reduction of labor item.

The problem of coal supply is worked out to a nicety, thereby obtaining fuel at the lowest possible price, and from the fact that great quantities of coal are kept on hand at all times for reserve, the customer is free from the worries in regard to the possibility of shortage of his coal supply.

As the central station supplies a vast number of customers of all kinds who use current at different times of the day, the load factor of the station is much higher than the average private plant, which is a very important feature.

One of the very large items in the cost of production in the power business, as well as in other industries, is fixed charges, including interest, depreciation, etc., on the investment. It is evident that with the high load factor of the central station these fixed charges are spread over a very large output, and thus the cost per unit of output is reduced to the minimum.

The result of the operation of these factors has been that for the last few years rates for central station service have been constantly decreasing, whereas, due to the advance in cost of coal, etc., the cost of operation of the isolated plant is gradually increasing.

One of the strong features of central station service is the matter of its flexibility. As the power user's business grows, it is simply necessary from time to time to add a motor as the necessities of the occasion demand, whereas in the matter of an isolated plant, it is necessary either at the start to provide an excessively large plant to take care of future growth, thus greatly increasing the fixed charges, or if the plant is installed of sufficient size to take care of immediate needs only, it is soon found necessary to make additional investment to provide for the future. Experience has proven that it is very difficult to forecast future requirements, and many plants can be pointed to which have been installed of sufficient size to take care of future business, but which have never been used to anything like their full capacity, on account of unforeseen changes in business conditions.

## LET THE GOOD WORK GO ON.

A correspondent writes in an interesting manner of the methods employed by the new Building Brick Association at Louisville, Ky., as follows:

Down in Louisville, Ky., where the brick men met in convention a few months ago, there has come an awakening the like of which has never been known before. The brick men, who in the Kentucky metropolis, have always been regarded as poor "publicity getters," have gone into the work of letting the public know what they have to sell and why it is worth the money that is asked for it, and they are already getting results.

As a matter of fact, the stimulation resulting from the gathering of the clans in Louisville has served to stir up all sorts of aggressive enterprises, and it is safe to say that the public at large is taking more interest in the subject of brick in general and building brick in particular than it ever did before. The work is going to be continued, and as the campaign gets older and cumulative effects begin to be realized, the trade will appreciate even more than now the value of the work which is being done.

The Louisville Building Brick Association is the organization through which the major part of the work is being carried on. This is composed of fifteen brick makers and contractors, and as the manufacturers of New Albany and Jeffersonville, across the river in Indiana, are also to come in, the membership will be somewhat increased in the near future.

Joseph Nevin, president of the Louisville Brick Co., heads the association; F. D. Schmidt, a well-known contractor, is vice-president; T. Bishop, of the Southern Brick & Tile Co., is secretary, and Isaac H. Tyler is treasurer.

Meetings are held every Tuesday evening in the Tyler Building, and while the main topic is the campaign of publicity and the results which are being secured, other matters of trade interest are also gone into. The attendance has been excellent, and members declare that the association is proving valuable not only with reference to the advertising plan, but because it has created a much better feeling among those in the trade.

Secretary Bishop has worked out an excellent method of personal solicitation. Every day the real estate reports indicate the transfer of property, and as transfers are frequently followed by building, the new owner invariably receives "No. 1" of a series of pamphlets describing the various advantages of brick. A few days later the second of the series is mailed to him, and so on until the fifth, which completes the list, has been sent. After this the name is retained on the list, and Mr. Bishop makes a point of investigating at intervals to learn whether the "prospect" intends to build.

The titles of the booklets which are used in this direct publicity campaign are "The Cost of a House," "The Beauty of a Brick House," "The Maintenance of a Brick House," "The Brick House Safe from Fire," and "Brick or Frame—Which?" They are issued by Parker Fiske, secretary of the N. B. B. A., with offices in New York.

Probably the most effective method of advertising brick which has been put into use here thus far has been through one of the daily newspapers, the Herald. Arrangements were made with this newspaper, which is a morning journal, to devote a page every Monday to the exploitation of brick. The association itself and the individual brick men advertise their proposition on this page, the ads being "carried" by interesting and appropriate editorial matter furnished by Secretary Bishop.

Thus far the matter has been general in nature and has been composed of extracts from the booklets referred to, as well as articles of general interest culled from the trade papers. The description of the Bamberger residence on Sixth street near Walnut in this city, which is the oldest house in Louisville, and is a splendid type of the brick dwelling of the old style, was reprinted from "Brick and Clay Record," and appeared recently in the Herald.

It is intended later to make a point of stories of local interest. For instance, if a particularly handsome brick residence is erected, it is to be photographed and the picture reproduced in the paper, with a description calling attention to its general features and special advantages. In this way the desirability, cheapness and beauty of brick will be brought home to local builders in a way that cannot be done through general articles.

On the Herald page appears, as stated, the advertisement of the association, which is devoted to "educational" information and does not contain the names of any of the individual members. The reader is invited to call on the association for further information, the telephone number and address of the secretary being given. Already the interest aroused by the exploitation has been shown by numerous applications for the literature which is offered, and in cases of this kind all of the pamphlets bearing on the subject are sent to the inquirers. A list of the names of those who show their interest in this way is carefully kept.

The Hydraulic Brick Co., of Louisville, of which A. Dumesnil is manager, is not a member of the association, but is doing some aggressive advertising on its own account. It is using the street cars as its medium, and an attractively printed card, stating the arguments in favor of brick as a building material in cogent form is now appearing. It is as follows:

"The best way to realize on a house is to build it right to start with.

"The best way to build a house is of brick.

"The best brick is red brick.

"Built of red brick.

"Hydraulic Brick Co., manufacturers."

This advertisement has attracted general attention also, and one who is interested frequently notices the evident interest with which passengers on the cars study the statements made. Of course they are put forward without reasons to back them up, but the plain affirmation, "brick is best," is bound to make the man who doesn't think so, wonder whether maybe the brick manufacturer isn't right after all.

A feature of the advertising which is being done and which will be carried on hereafter is that there is no reference whatever to any other kind of material. The brick men have decided to make their exploitation positive, not negative; boosts for brick, and not knocks for anything else. It is believed that this constructive, rather than destructive method of advertising will win more friends and attract more favorable attention than the most carefully planned and powerfully composed attacks on competing materials.

"We are much encouraged by the results of our work thus far," said Secretary Bishop, to the representative of "Brick and Clay Record," "and are glad also to note the good work which is being done in Evansville, Ind., and elsewhere. We have the proposition, and if we simply persist in telling the people about it, we are bound to come out on top."

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"Don't forget in figuring liabilities that you owe a few things to yourself."

# ELECTRIC DRIVE POTTERIES

### By A. E. Rickards

The manufacturers of pottery and enameled decorative floor and mantel tile have, as a class, been slow to look into the question of motor drive for their apparatus, especially in connection with purchased power, as the use of exhaust steam in the dry rooms has been considered as outweighing all other considerations. The nature of the work is such, however, that individual motor drive offers many advantages, and such installations as have been made show decided savings, accompanied by an increase in output. The use of belts and line shafting in factories of this type is especially disadvantageous, on account of the fine clay powder which fills the air and collects on belts and pulleys, works into the hanger bearings, etc., producing excessive belt slippage and large friction losses. Considerable difficulty is often experienced in keeping the machinery at proper speed on full load, and the output of the plant is in many installations limited on account of the belt slippages. The introduction of individual motor drive will, in such cases, increase the output of the factory by ten to thirty percent without any other increase in factory equipment, extra floor space or increased labor.

Grinding Cylinders—Glaze Department, Driven by a 15-h. p. Induction Motor.

In making tile, the dry process is used. That is, the material when pressed into the molds is a fine dry powder. In the wet process, used in the manufacture of pottery, the material is in the form of a wet clay when molded into its final shape. The initial preparation of the raw material, however, is identical in the two processes.

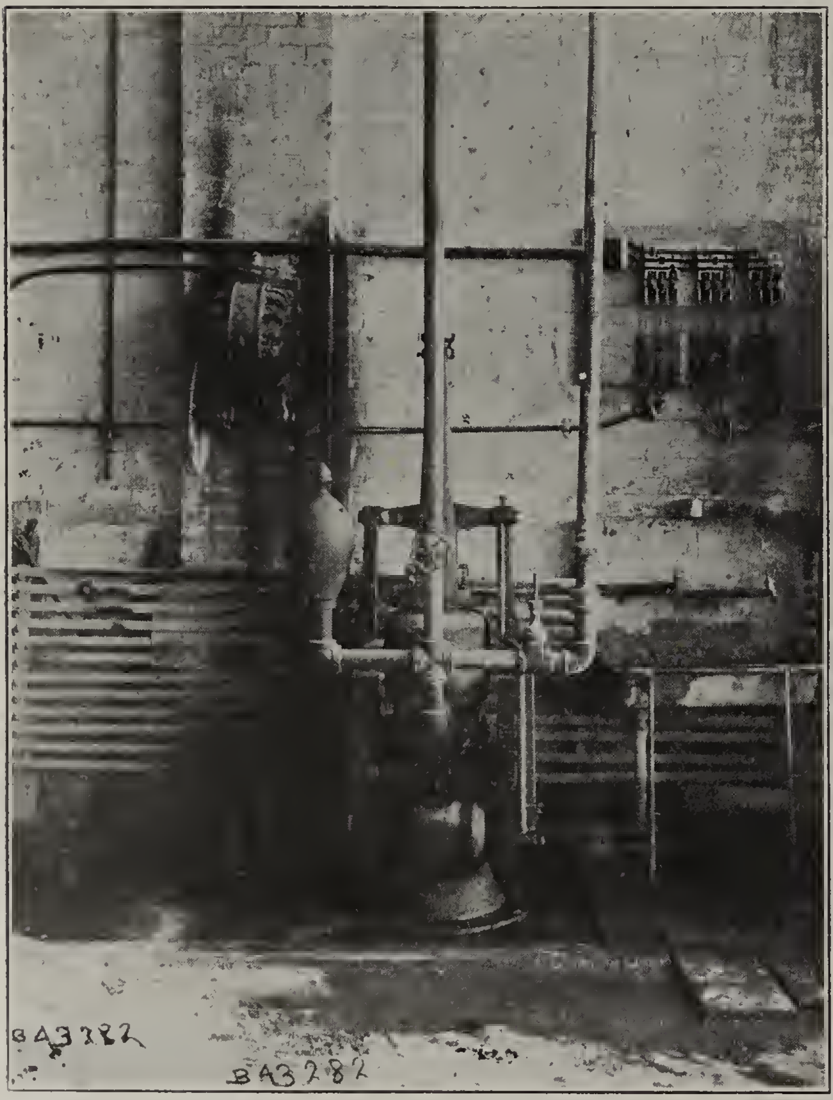
The material from which both tile and pottery are made consists of a mixture of flint, feldspar and clay. A charge of these substances, weighing about 4,000 pounds, is thoroughly mixed with sufficient water to give it the consistency of heavy cream in a large tank called a "blunger mill." The mixing is done by means of paddles revolving on a vertical shaft, which is direct-connected to a horizontal driving shaft by means of a bevel gear. The charge is stirred from four to six hours until a uniform consistency is secured. The "slip," as the mixture of clay and water is called, then goes to a sifter, where a copper wire screen with a mesh of 100 per inch, oscillating at about 400 times per minute, removes all lumps, pebbles or foreign matter, but allows the slip to pass into a storage cistern called an "agitator," where it is kept until ready for use, usually only a few hours. As the flint and feldspar are insoluble, and would soon settle to the bottom if left standing, a paddle is rotated in the cistern at a rate sufficient to keep the mixture in constant motion.

The blungers, sifters and agitators are mounted in close proximity to eliminate pumping, and are ordinarily driven by belts from a line shaft. These belts are very much in the way, and, when a heavy charge is put in the blungers, the slippage is quite large, causing a decided reduction in the capacity of the mills. Direct motor drive, such as shown in the illustrations, has increased the output by 15 per cent over that secured by the use of belts from the same machines in the plant illustrated.

From the agitator, the slip is pumped into the slip press, a rack containing a number of iron plates, between which are canvas sacks. The pressure from the pumps is sufficient to press the greater part of the water out through the canvas, and leave layers of the clay deposited between the plates. These pumps which lift the slip to the presses operate against very little pressure as they start pumping into the empty presses. As the press gradually fills, the pressure increases until by the time its capacity is reached the pumps are operating at a pressure of from 100 to 110 lb. With belt drive, unless very large heavy belts are used at excessive tension, the slippage increases very rapidly with the pressure, increasing the amount of power and the time required to pump a charge. With the pumps shown driven by belts, 45 to 50 minutes were required to pump a charge of one ton. With the motor geared to the pumps, the same work is done in 15 minutes.

The clay at this stage is moist and sticky, and is, by reason of the treatment it has passed through, uniform in composition and free from lumps, pebbles or foreign material.

The processes in the manufacture of tile and pottery are identical until the wet clay is removed from the slip presses. From this stage the processes are different. To secure the dry material for the making of tile, the wet clay from the slip presses is placed on racks in a heated drying room, where all the moisture is evaporated. The hard clay is then passed through a crusher, which breaks it up into small pieces, after which it is ground into a fine powder in the dust mills. These mills are usually 36 to 48 inches in diameter, and are provided with paddles, or fans, which revolve at about 1,200 r.p.m. inside a cast iron case.



Motor Driven Deep Well Pump.

On account of the high speed, necessitating large pulleys on the driving shaft and small ones on the mills, and on account of the dust which continually accumulates on the belts, forming a glazed surface, the driving of a dust mill by means of a belt offers many annoying features. The heavy tension necessary to reduce slippage produces large friction losses, while considerable trouble is frequently experienced from belts breaking, or jumping off the pulleys. With line shaft drive it is necessary, in such cases, to slow down or stop the engines to replace one belt, thus delaying the work in the entire plant. Even when no such trouble is experienced the slippage is usually large enough to appreciably decrease the output. Thus, the dust mill shown ground only four tons of clay per hour when driven by belt without interruptions, while when direct-connected to a motor, the output was increased to five tons per hour, and, owing to the more uniform speed, a finer quality of dust is secured than was possible before.

Dust Mill Driven by 20-h. p. 1,120 R. P. M. Motor.

The fine, dry powder produced by the dust mills is molded into forms by hand presses, after which it is ready for the initial firing.

Pottery ware, as previously stated, is molded from the moist clay. The clay from the slip presses is of the right consistency, but is liable to have the moisture unevenly distributed throughout the cakes. These are, therefore, passed through a pug mill, to insure uniformity of the materials. This mill is a round tank, open at the top and having a vertical shaft with a number of paddles, which when revolving mix the clay and at the same time push it to the end of the tank where it is pressed through a die about eight inches in diameter located near the base. The clay from the pug mills, is then molded into the finished ware on machines called "jiggers" or "jollies." This green ware is soft and full of moisture and is accordingly thoroughly dried in a heated drying room called the "green" room.

The firing of the ware is practically the same for both tile and pottery work. The dry ware is exceedingly brittle and easily damaged, and is protected from injury in the kilns by being enclosed in fireproof clay receptacles, called "saggers." The temperature depends on the quality and thickness of the material to be burned. In order to determine the temperature of the ware during the firing, several pointed cones, built up of flint and clay,

Agitator Driven by 3-h. p. 850 R. P. M. Induction Motor.

Mosaic Tile Works at Zanesville, O., Operated by Electricity.

are placed in the kiln where they can be observed through a peep-hole. The cones are numbered, according to the amount of heat they will stand, the melting point being determined by the percentage of flint. When the sharp points of the cones bend over from the heat, the potter knows by experience what temperature he is getting.

After the initial firing, the ware is decorated, refired and glazed. The raw material from which the glazing is made resembles glass very closely. It is ground up in the glaze mills, which are similar to the tube mills used in cement works and mines. They consist of steel cylinders lined with porcelain brick and containing several hundred pounds of small cobble stones, the "frit," as it is called, being ground up between the sides of the rotating cylinder and the pebbles. When ground into a fine dust, the frit is mixed with water and is ready for use. Pottery ware is dipped entirely into the glazing. Tile is glazed on one side only. The ware is again fired, and is then ready for the market.

Both tile and pottery ware are placed in sagars for each firing. This constant handling breaks a large number of the sagars so that it is always necessary to have a sagar department in order to keep up the stock. The broken sagars are crushed in a "grog" pan of the type shown. This consists of a pan five to seven feet in diameter, the bottom of which is made of cast iron plates full of fine slots. Suspended in the pan are two heavy steel rolls, each weighing from 600 to 700 pounds. Material thrown into the revolving pan is crushed under the rolls and sifted through the slots in the bottom of the pan into a bin. This material, known as "grog," is mixed with clay, passed through a pug mill and formed into new sagars, which are fired and are then ready for use.

Sifter Driven by 3-h. p. 1,120 R. P. M. Induction Motor.

Two Double Blungers Driven by 10-h. p. 1, 120 R. P. M. Induction Motor.

In the sagar department there is usually a "wad" mill, similar in construction to a pug mill, except for the die at the bottom of the mill. In the wad mill this die has a large number of holes through which the material is pressed, forming strings of clay, which are placed between the sagars when they are stacked up in the kiln, to keep them from burning together.

The wad mill, grog-pan, sagar pug mill and sagar press can all be driven with advantage by individual motors, with a considerable saving of both power and labor. In fact, one of the notable features of the change from belt to motor drive is the increased output per man which is thereby effected. On the other hand, the glaze mills are usually driven in a group, as a nearly uniform load can thus be secured on the motor, and the friction losses are usually not excessive.

Several of the illustrations shown represent apparatus at the plant of the Mosaic Tile Company, at Zanesville, Ohio. This firm formerly had an 80 h. p. corliss engine driving a long line shaft in their preparation room, operating the blunger mills, sifters, agitators, slip pumps, crushers, dust mills, and dust mill conveyors and sifters. They also had an 80 h. p. tandem gas engine driving a generator which furnished power for motors operating group drives in the machine shop, ball mills, sagar and glaze departments, and also the necessary current for their lighting system. With this equipment, their power costs per month were as follows:—

| | |
|---|---|
| Engineer's Salary | $65,00 |
| Coal and gas | 180.00 |
| Up-keep of belts | 25.00 |
| Loss due to shut-downs on account of belt troubles | 25.00 |
| Oil and waste | 20.00 |
| Gas engineer | 6.25 |
| Gas engine maintenance and repair | 25.00 |
| Five percent loss in time due to gas engine shut-downs | 60.00 |
| Incidentals | 8.25 |
| Total | $414.50 |

The belt troubles mentioned were largely at the dust mills where considerable difficulty was experienced on account of belts breaking and also jumping off, due to the high speed and the necessity of using such large pulleys on the line shaft and small ones on the mills. Every time a belt came off it was necessary, in order to replace it, to slow down the engine, thus delaying the work in the entire plant. This occurred several times a week. The item, gas engineer, covers the time of a machinist who devoted only a part of his time to this work. The steam engineer, in addition to the care of the steam engine, also took care of all belt repairs and the oiling and care of the shafting.

Slip Pumps Driven by 5-h. p. 120 R. P. M. Induction Motor.

The demand for power at this plant finally became greater than its capacity, and the company disposed of its engine equipment and installed motors, buying power from the Ohio Electric Railway Company, of Zanesville, Ohio. The belts were eliminated entirely in the preparation room, and, in fact, there are but six driving belts left throughout the entire factory, with 35 motors installed.

As a result of the change, the capacity of the entire plant was increased fully 20 per cent over their old method, while at the same time the cost of power, including repairs, does not exceed $150 per month. This affords a clear saving of over $250 per month in spite of the increased output. In addition an appreciable saving in labor was effected. In the sagar department, for instance, eight men were formerly required to keep up the stock of 85,000 to 90,000 sagars required. Motors geared direct to the grog pan, pug mill and sagar press have so increased their capacity that six men are now able to keep up this stock.

One serious difficulty confronting the management at the time of the proposed change was the heating of the dry room, which had been heated by the exhaust steam from the engines. At present they are utilizing the waste heat from the kilns. When a kiln is drawn, after the material has been burned, the fire is shut off and the kiln and its contents allowed to cool slowly. This heat is now drawn by a fan and blown through the dry rooms, and, as there are always several kilns being drawn at one time, they have more than enough heat.

Tests have been made on several tile factories where individual motors have been installed and they show an average of 28.2 kw-hr. consumed per month per h. p. installed. On the basis of a nine-hour day the load factor will run from 15 to 20 per cent, this latter figure being quite safe to use in estimating the cost of power for such installations.

## ISSUES NEW CATALOG.

The merits and various uses to which the Thew Automatic Shovel may be put are set forth attractively and interestingly in the new catalog No. 8 which the company is issuing.

The Thew shovel has achieved recognition as an important factor in the field of excavating machinery. Through long years of development and service it has demonstrated its merit and adaptability for excavating operations about clay plants as well as for work of a heavier character.

These shovels are manufactured in an up-to-date factory, by skilled workmen, under efficient management, with materials of first quality, insuring a well-nigh perfect article. Illustrations of the many shovels put out by the company to meet various conditions are shown in the catalog. Several are made especially for handling shales, fire clays and hard pan, which usually have to be blasted or broken by picks for excavation by hand. Much useful information may be gained by the perusal of this catalog, which will be gladly furnished to anyone upon request. The company is located at Lorain, O.

## BRAZIL BRICK CHOSEN.

The Hydraulic Pressed Brick Co., of Brazil, Ind., has acquired a reputation throughout the country for its beautiful face brick, this brick being chosen for the facing in the New Palace Hotel in San Francisco in competition with brick from all parts of the United States. The company has secured a contract to supply 75 cars of this face brick for the new Heison Building in Chicago. As there are 10,000 brick to a car, the order amounts to 750,000 brick. Mr. H. A. Ireland is the successful manager of the plant.

## THEY DRAW.

Ever see bees around a honeysuckle? That's the way "Brick and Clay Record's" ads draw results.

# THEW ELECTRICALLY OPERATED SHOVEL

The following article on "The Cost of Excavating Earth with an Electrically Equipped Shovel" is a reprint from Engineering-Contracting.

The Brantford & Hamilton Electric Railway Co. of Hamilton, Canada, has installed a Thew shovel, operated by electrical power, to work on the construction of an extension of its lines. Through the kindness of Mr. C. K. Green, manager of the railway company, we are able to give some records of this shovel's operation and the cost of some of the work that has been done.

The shovel is a No. 1 type, manufactured by the Thew Automatic Shovel Co., Lorain, Ohio. It weighs 25 tons, and has a radius of cutting at a height of 9 ft. of about 24 ft. This style of shovel, mounted on a railroad truck, has a full circle swing. It was equipped with a 35-h. p. shunt wound direct current motor furnished by the Canadian Westinghouse Co. The current is received through the truck by wire cables, and is transmitted to the motor above through copper rings on the truck frame and carbon brushes suspended from the swinging turn table above. Either direct or alternating current motors can be used on these shovels. A 1 cu. yd. dipper was used on the shovel. Two men were used on the shovel, one for operating and the other for tripping, the men changing places frequently.

The conditions under which this shovel was worked were most favorable. It worked in a gravel pit, the depth of the cutting being about 14 ft. The material was very easy to handle. The pit was very long, so the shovel did not need to be shifted often, and inasmuch as it makes a complete swing, the time of shifting was very short. A special trolley wire was used for the motor in the shovel, so that the current was constant. This is an important feature of an electrical installation. No time was lost in moving the shovel ahead, as the two men working in the pit would clean out a space directly in front of the shovel, when the machine would pick up a section of track in the rear and place it in the newly cleaned space. While the two pitmen were fixing this piece of track the shovel would take gravel from the side, so that not more than a minute was required to move the shovel ahead.

The company had an ample supply of flat cars on which were loaded 14 cu. yds. loose measurement. There were also plenty of motors to haul the trains away, six cars making up a train. One motor car was used to spot the cars continuously, and a man was employed as a signalman to assist in spotting cars. The shovel worked a ten-hour shift, and any repairing and overhauling was done at night by another crew. Operating in this manner, as a rule, the shovel was loading the maximum time, there being but little time lost in placing cars under the dipper and in moving ahead. With the electrical current no time was lost in taking supplies of water and fuel.

The trains that carried the gravel away were operated by a motorman and one other man. A plow, pulled by the motor car, was used to unload the cars, and two men were kept on the dump to handle the cable of the plow and to attend to other details.

Owing to the large supply of cars and motors, to the favorable conditions in the pit and the method of operating, the output of the shovel per day did not vary much. A great many days 100 flat cars were loaded and hauled away. This meant an output of 1,400 cu. yds. loose measurement, or 1,050 cu. yds. place measurement.

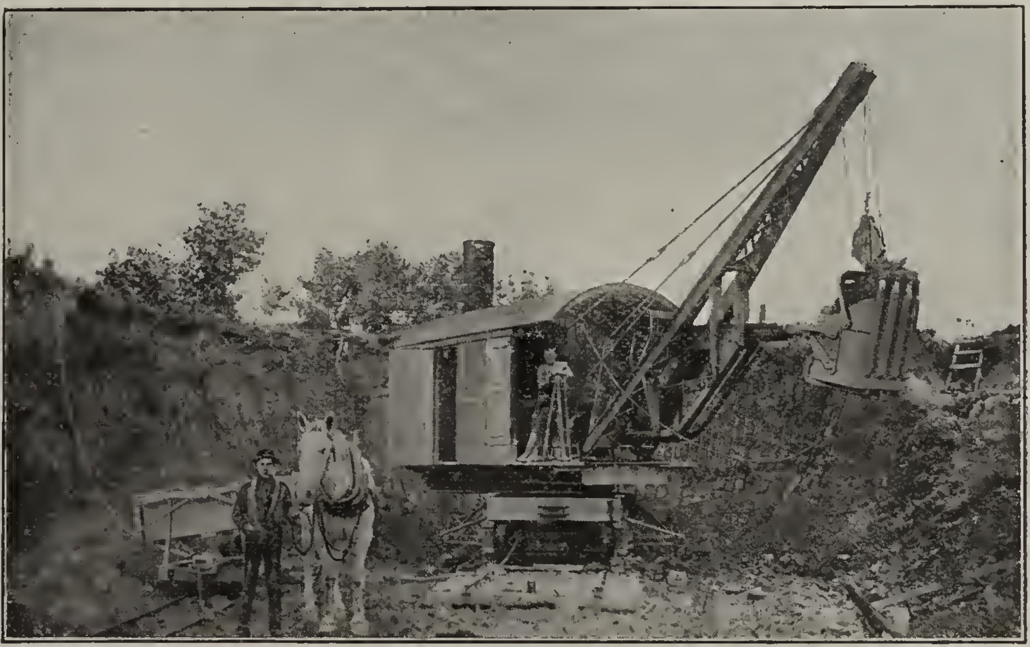
With the following wages: Superintendent, $4.00; shovelmen, $3.00; pitmen, $1.50; motormen, $3.00; trainmen, $1.50; dumpmen, $1.50—

We have a labor cost for operating per day as follows: Superintendent, $4.00; shovel crew—2 shovelmen, $6.00, and 2 pitmen, $3.00; spotting cars—1 motorman, $3.00, and 1 signalman, $1.50; transporting (2 trains)—2 motormen, $6.00, and 2 trainmen, $3.00; dump—2 men, $3.00. Total, $29.50.

With 1,050 cu. yds. moved per day we have the following unit cost for labor: Superintendence, $0.004; loading, $0.013; transportation, $0.009; dumping, $0.003. Total, $0.029.

To this must be added charge for power, plant charges, repairs and track work. When the haul increased in length additional trains were added, so that the shovel was still kept busy loading the cars.

On some days the output fell to 80 carloads or less. With this output, namely, 800 cu. yds. place measurement per day, the unit labor cost was: Superintendence, $0.005; loading, $0.017; transporting, $0.011; dumping, $0.004. Total, $0.037.



Thew Electric Shovel.

The above show low records of cost for steam shovel work, but they make evident the economical features of excavating with a shovel of this type, as small and inexpensive crews are employed, and a comparatively large output can be obtained by using the best methods of operating.

## GROWTH OF CEMENT INDUSTRY.

The following statements appear in a bulletin issued by the U. S. Geological Survey:

"Few mineral products can show so rapid an increase in output as Portland cement. The production for 1909, according to the United States Geological Survey, was the greatest in the history of the industry, being 65,399,889 barrels, valued at $52,797,973. In 1900 the production was only 17,231,150 barrels, in 1902 it was 25,753,504 barrels, in 1905 it was 31,675,257 barrels, in 1906 it was 51,000,445 barrels, and in 1908 it was 52,910,925 barrels."

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The Baker (Ore.) Fire Clay Co. has filed articles of incorporation.

**BRICK AND CLAY RECORD**

Vol. XXXVIII. MAY 15, 1911 No. 10

## EDITORIAL COMMENT.

We occasionally have the pleasure of perusing various publications issued in behalf of the cement and concrete interests, and whenever we do so, we invariably run across some bitter arraignment of the clay press on account of items appearing in same, from time to time, relating to concrete failures and the fallibility of some forms of cement construction.

It is evident that the publication of these records hurts, and while we dislike to injure the feelings of the cement people, yet we feel compelled to continue our policy of calling attention to such failures.

Doubtless some of the newspaper reports of such failures, the usual source of our information, may not give the full details or causes, but the fact remains that the record of concrete casualties and fatalities continues to grow and speaks for itself.

If we publish nothing more than this record, further comment would be unnecessary, for no matter how excellent the excuses and apologies may be for such failure, their continuance and the increasing death roll resulting from them is most deplorable.

As stated many times before in this journal, we feel no malice towards the cement interests, and fully realize the great value of cement as a construction material, but we do believe that cement is being used for many purposes for which it is unsuitable and fit and that concrete in some forms of building construction must always have an element of uncertainty and unsafety.

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"The man to be pitied is the one who doesn't profit by his mistakes."

## MY ELECTRA.

Electra's a magnetic girl—
Dynamic little witch;
Lectricity is in her hair—
I saw her turn the switch.

She came to me the other night
With eyes like stars enlarged,
She said she'd had 'em charged.
And coyly showed me some fluffy puffs—

But she and I will soon connect
And Watt not of the lurch;
I've got a date, an urgent date,
To meter at the church.
—J. J. McGrath in Ideal Power.

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## DO YOUR DUTY.

We want "Brick and Clay Record" to be the news distributer for the entire clay industry in this country. While we have the greatest interest in each and every one of our large and constantly growing family, it is obvious that we are unable to visit each of the many plants, even once a year, and as we cannot keep a representative in every community we are going to ask you to consider it a duty, as well as a privilege, to send us the "clay" news in your locality, and no undue modesty should prevent you from mentioning what you are doing at your plant. Remember, we will look for a letter from you at least once a year.

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## TO WIN SUCCESS.

"Early to bed, early to rise,
Work like Hell, and advertise."

Brickmakers will bear us out, in the statement that they have always strictly adhered to the first three terse adages, but only recently have they added the last bit of advice, which was the one thing needful to make a grand success of a noble enterprise. We thoroughly believe that the old proverb could well be changed to, "Blessed shall be the man who makes one good brick of what was once a piece of clay."

## A BIG MOUTH.

How much would you pay a man to visit 7,000 clay manufacturers and tell them you wanted to sell that old pugmill and cut-off table you have standing there in the corner in everyone's way?

Or perhaps you would prefer to have him use a megaphone large enough to reach every clay plant in the country. Either way would prove rather expensive.

We have a "large mouth" and can talk to 7,000 clay manufacturers at one time, telling them what you want for the insignificant sum of $2.00 per inch for space used in our Classified Department.

ADS in "BRICK AND CLAY RECORD" bring results, as hundreds of pleased advertisers will testify.

If you have anything to offer for Sale or desire to Buy anything in the clay line or need Help or want a Position you cannot do better than to send us an AD for our next issue. You are sure to get results.

# INDUSTRIAL TELEPHONES

## Intertelephone Furnishes Means of Communication Between Widely Separated Departments at the Clay Plant

Confusion, delays, inconveniences and unbusinesslike methods of every sort—to all of these the telephone is an enemy. Interior telephone service, as exemplified by the inter-phone, welds together the departments and offices of a brick or clayworking plant, making possible harmonious, systematic effort at very little extra cost.

The problem of intercommunication in the industrial plant is an important one. There is scarcely a moment in a busy day when someone is not consulting with someone else, who is perhaps located at a far distant corner of the building. The foreman of one shop and the head of another department will both lose valuable time, if they are obliged to leave their duties to travel about the plant every time it is found necessary for them to consult together.

Intertelephone—Desk Type.

The demand for an adequate means of interior connection in the clay manufacturing plant was never successfully met until the telephone was called upon. Business houses of many kinds once used the speaking tube method, but this they found inconvenient as well as unsanitary. The telephone does the work formerly assigned to tubes, signal bells, messenger boys and many other instruments both awkward and uneconomical.

As adapted for the use of the busy clay plant the interphone system has a distinct advantage in that it is automatic, requiring no switchboard or operator. Connection may be made between any two telephone stations by the mere pressing of a button. The system is at all times available for immediate use.

Inter-phone instruments are of either the wall or desk type. Some wall type instruments are made flush to set into the wall, while others which are mounted on the wall are of the non-flush type. This kind of instrument is used in large offices and in shops where there is occasion for more than one person to make use of the instrument. The desk inter-phone is found more convenient in small offices for the use of superintendents, managers, etc. With this type an ordinary desk set, or a hand set, is used, but the principle is the same with all types of instruments.

On the face of each wall type inter-phone, and on the box which accompanies each instrument of the desk type are two vertical rows of connecting buttons, each accompanied by a label with a suitable inscription. One label will bear the word "Superintendent," another "Stock Room," another "Machine Shop," etc.

If, for instance, the superintendent of the plant wishes to consult with his engineers he presses the button labeled "Engine Room" and the bell at that station rings. The person at the other end presses a button marked "Answer" on his instrument to complete the connection, and the conversation is on. This method is delightfully simple.

Energy for signaling and transmission with these instruments is supplied by dry batteries, and the only expense which may be classed as maintenance cost is the occasional renewal of these cells. The wiring is all enclosed in cable. When instruments are installed they take up so very little room that no inconvenience can possibly result.

The inter-phone system fits in with every detail of a busy day's work at the brick plant, and it is an improvement that has been hailed with delight by those who recognize the great advantages it affords.

### BETTER ROADS.

"Better Roads" is the name of a neat monthly publication just issued by the officials of the Ohio Good Roads Association. Jesse Taylor, of Jamestown, O., who delivered an interesting address before the Paving Brick Association at the Louisville convention, is editor and publisher.

The publication is filled with timely matter concerning the building of "Good Roads," and here and there a good boost is being given to the use of brick for such highway improvement.

Wall Type—Intertelephone.

The Marion Brick & Tile Co. has secured articles of incorporation at Marion, Ill. It will take over the old plant of the Marion Pressed Brick Co. which failed recently. The company is capitalized at $10,000 and the incorporators are Fred Stotlar, E. C. Forbush, E. M. Stotlar, Harry Stotlar and Sarah Stotlar, each taking twenty shares of stock.

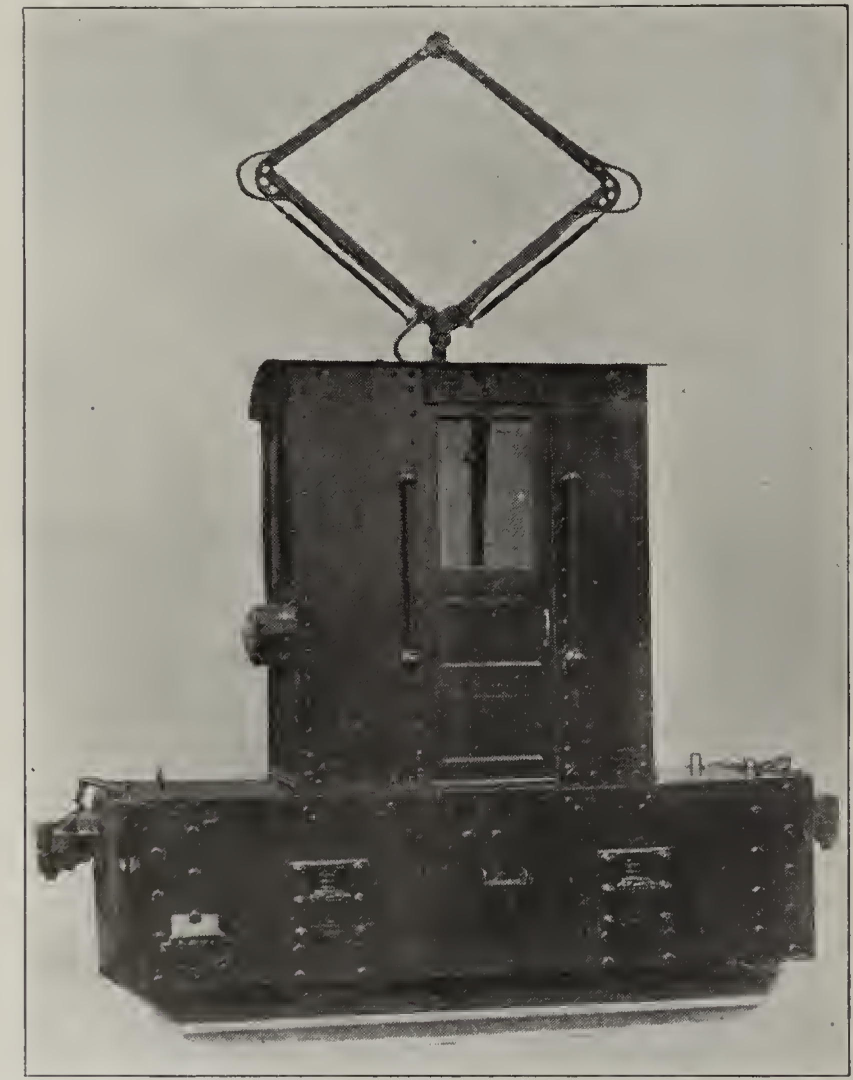
# ATLAS ELECTRIC HAULAGE

During the last decade, owing to the great necessity of economical production, it has become necessary for the brick manufacturers to look for a more convenient and economical manner of transporting both the raw and finished material about the plant.

As almost every brick and clay-working concern is now using electric power in some form or another, it is to this source that the producer must look for a solution of his problem: hence, the electric locomotive and the electrically driven cars.

The electric locomotive for the same service is lighter and more compact than the steam locomotive and can be handled by a single, comparatively unskilled, operator, is always ready for use and consumes no fuel when idle.

A small electric locomotive and one man can, in a few hours, accomplish the same amount of work that ordinarily would require several men an entire day. The cost of power furnished a 10-ton locomotive, based on a rate of 5 cents per kw. hour, will not average more than 30 or 40 cents a day. It will readily be seen that this is far superior to mule power or a steam locomotive.

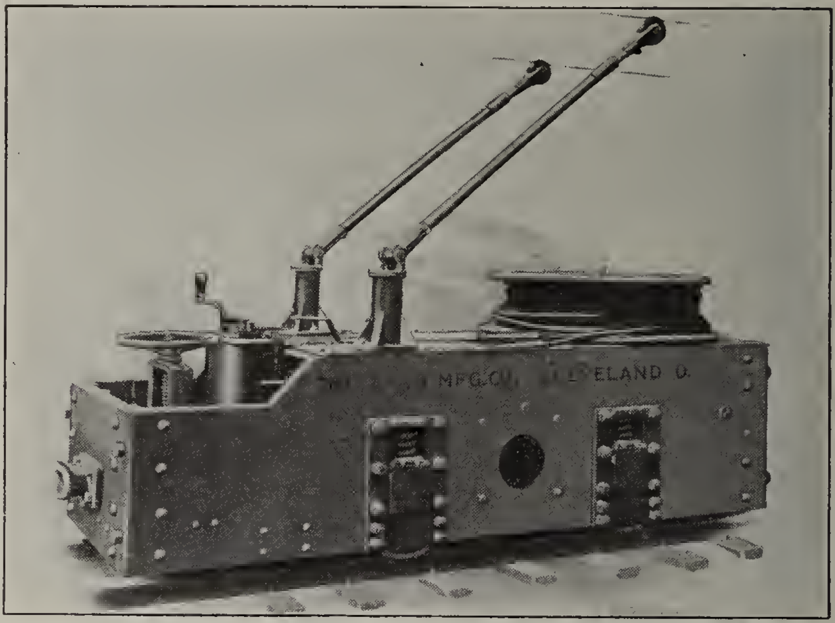


Electric Locomotive Made by the Atlas Car & Mfg. Co.

We illustrate herewith types of electric locomotives and electrically driven cars manufactured by the Atlas Car & Mfg. Co., Cleveland, Ohio. These can be furnished for use with either trolley or third-rail. The locomotives are made exceptionally strong and rigid; the sides are of one piece of rolled steel plate, in some instances being 4 in. thick. These are connected at the corners by heavy angle connections which are riveted or bolted with turned bolts.

The motors are of special construction to withstand the hardest usage and are furnished sufficiently large to take care of a considerable overload without overheating. Owing to the liberal dimensions of bearings, wearing parts, and the very substantial manner in which these locomotives are built, the cost of up-keep is very low. All parts are easily accessible.

Drawbars of different types can be furnished as required, and the locomotives are made in gages from 18 in. to 56 1-2 in.



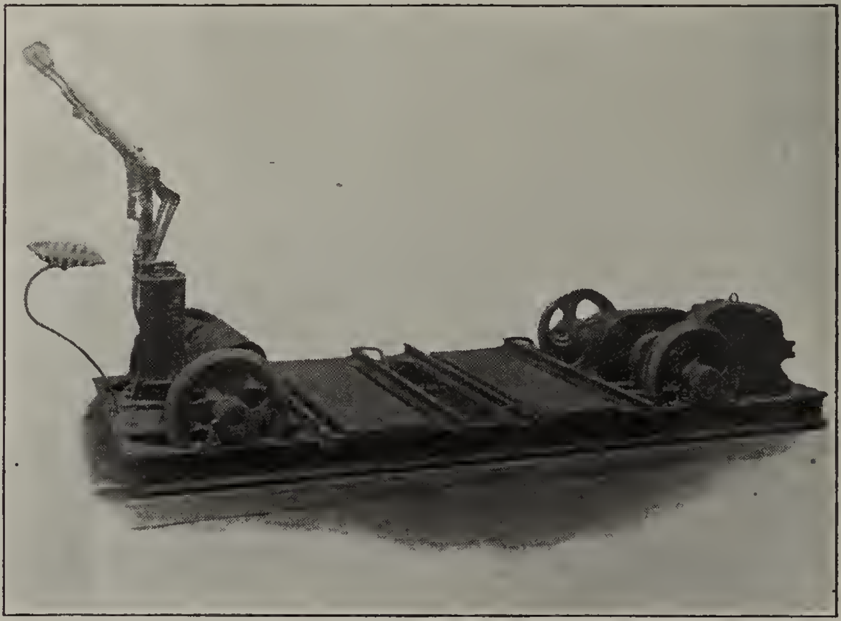
Electrically Driven Car, Atlas Car & Mfg. Co.

The electrically driven cars are of the various well-known types and are also very strongly built. The electrical equipment is of the best.

Wheels are of the best quality of charcoal iron, chilled, and treads are ground to equal circumferential measurements. All wires are encased with special conduits to protect them against wear and other injuries.

The Atlas Car & Mfg. Co. have issued a special bulletin treating on the above equipment. This bulletin is mailed free of cost on request and contains valuable information. Their line of drier cars are too well known to require mention in these columns, as many of our readers have them in use in their plants.

We also illustrate a transfer car which is meeting with universal favor. This is made in single and double track and in gages to suit requirements. Construction, electrical equipment, etc., covering the cars and locomotives, also apply equally well to the transfer car.



Electric Transfer Car.

## READY TO RUN.

The plant of the Assumption (Ill.) Brick & Tile Mfg. Co. which has been closed for several months, has been reopened. The new superintendent has given the machinery a thorough overhauling and has everything in readiness for a good season's run.

# ELECTRICITY FOR THE CLAY-WORKER

### By T. E. Simpers, of the Westinghouse Electric & Mfg. Co.

The service conditions encountered in applying motors to clay working machinery are among the very worst experienced in any industrial service. These unfavorable conditions are:

Severe overloads due to irregular feed of material. Hard starting due to material in machinery hardening while at rest. Dusty atmosphere about plant. Presence of dampness causing collected dust in motors to become cemented to the windings, causing insulation strains and interfering with the ventilation. Large pitch of gears in general use on clay working machinery and the use of high pitch line speeds, causing severe vibrations of all machinery. Insufficient attention from operators.

These conditions are successfully surmounted and the best of service is obtained only by giving the application of the motor to each individual machine careful consideration.

This involves a careful analysis of the following points:

Starting conditions including the amount and variation of torque required and frequency of starting. Running conditions, including general nature of work to be performed and the variation in load for various given outputs.

These conditions vary greatly in different plants, and are materially affected by the general design of the plant, its operation and the nature of the material worked. It can thus readily be seen that it is necessary to give the various points, mentioned above, careful study before deciding on motor size, type and method of connection to the clay working machine.

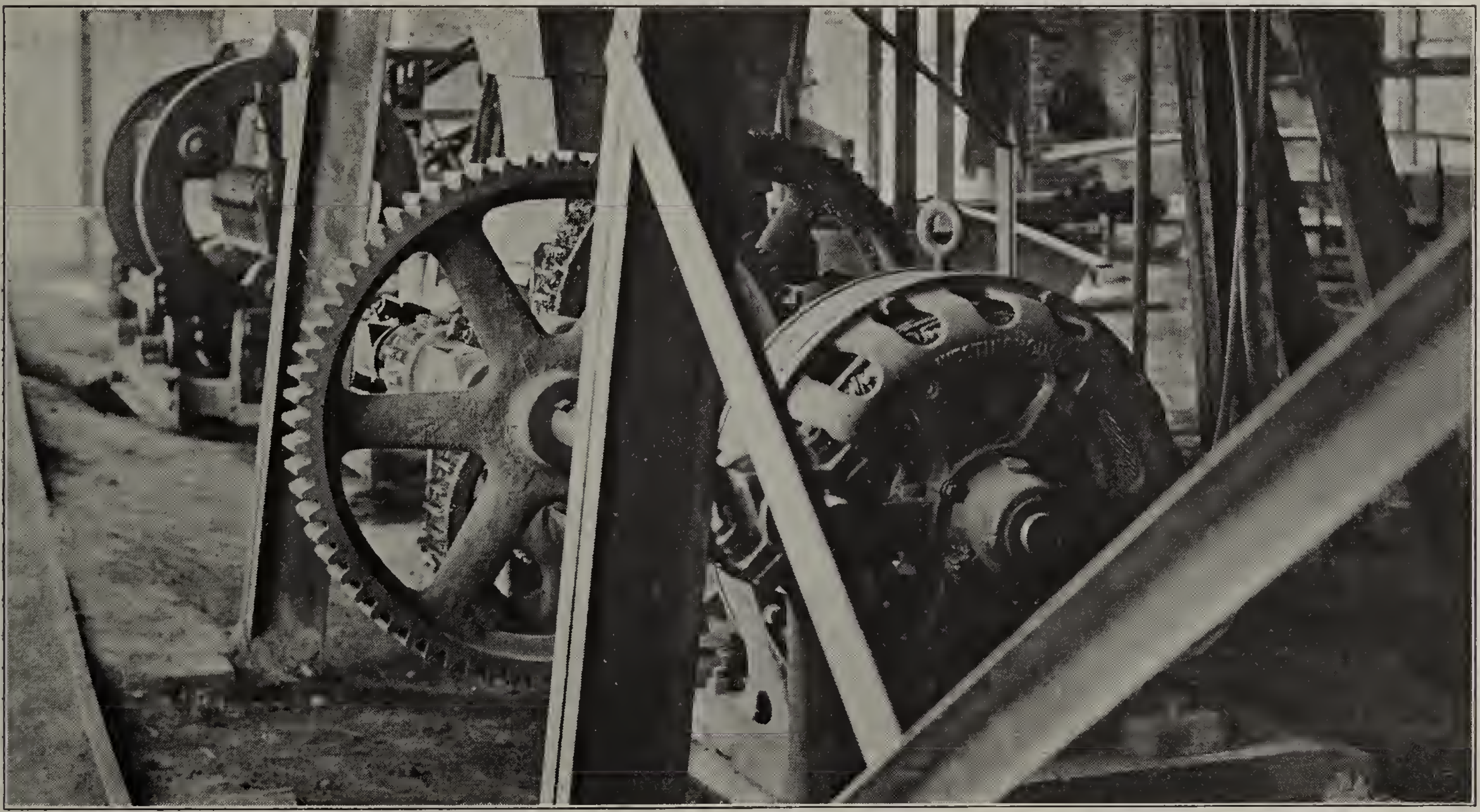
There is a tendency in electrifying clay working plants to over-power the plant in order to be on the safe side of the severe starting and operating conditions. Such a condition will cause the plant to operate at a low load factor and at a power factor considerably lower than can be obtained if individual applications are carefully made, and the service which each motor will undergo carefully considered.

The advantages obtained by the application of motors are briefly thus:

Less cost of output with a reasonable power cost. More efficient operation due to the fact that line shaft and belting losses are done away with and that each machine can be operated as a unit. Ability to apply motors so that if overloads occur which may cause breakage of machinery, the circuit will be opened and machinery in danger stopped before the damage occurs. A practically constant speed of machinery at all loads, resulting in increased production.

The various manufacturing operations in a brick plant in order, and the motor applications, are as follows:

Hoist or conveyor from clay quarry to the plant: In a large plant with a long haul, the clay is generally transported by means of an industrial railroad. The economical way to do this is by means of a motor operated transfer car or industrial locomotive. These may be either a. c. or d. c. operated from an overhead trolley. The loose material and large amount of dirt around a plant of this kind makes a third-rail system undesirable.


Application of Electric Motors to Clay Working Operations.

After reaching the plant the material may be dumped into storage bins and conveyed to the granulators, crushers or dry-pans at will by a bucket-conveyor or dumped direct into the disintegrating machinery. In case the raw material is shale, crushers and dry-pans are generally used.

In many plants the distance between the quarry and the granulators or crushers is small, and a motor operated hoist or bucket conveyor, which may be controlled from the same point as the granulators or crushers affords a simple and economical method of transporting the material to the plant.

The conveyor from storage bins to the crusher and the crushers or granulators can be driven by a constant speed motor coupled by a flexible coupling to the crusher at one end and belted to the conveyor at the other end or both crusher and conveyor may be belted. If economy of space is important, the coupled motor is most desirable. The flexible coupling is recommended to absorb the vibrations caused by the crusher and to extend the life of the motor.

The dry pans should be driven by gearing a constant speed motor from a pinion on the motor shaft to a large gear on the dry pan shaft. Here it is also recommended that a flexible coupling be installed between the motor and gearing as it has been found that the vibration caused by the machinery and gear are very hard on the motor and will shorten its life considerably.

In fact, for a proposition of this nature, it would be best to mount the motor on a separate foundation, connecting it to the driven machine by means of a flexible coupling and thus freeing the motor as much as possible from the vibration of the machine.

The pug mill and auger can also be driven by geared motors. Because of the large pitch of the gears used on these machines, considerable vibration is produced and flexible couplings are recommended. The auger will require the greatest power of any motor in the plant, and, in fact, may require one-third of all the power required to operate the plant. In making this application, careful consideration should be made of the starting current taken by this motor and the capacity of the power plant behind it. If there is no clutch between the motor and the auger, the motor may be required to start frequently and if the current taken by this motor is near the capacity of the power plant, serious troubles in the plant operation will be encountered. This is due to the lowering of the line voltage, because of the motor driving the auger taking excessive current.

The cutter, repress and conveyors between the various machines require little power and may be driven either by small motors or by auxiliary drive from the machine upon whose operation they are dependent.

As a general rule, it is found advisable to drive the various machines by means of gears, for as compared with belt drive, this method of connecting the motor to the machine offers the advantage of less space occupied and less maintenance cost. Some of the machinery can be started light, and for machines requiring 50 h. p. and less, a squirrel-cage type motor will give satisfactory operation. In the majority of cases, however, provisions should be made for starting the machines full of material. This can be best accomplished by using a clutch.

In case of the pug mill and auger machines, the starting conditions are often very severe, the operation of these machines being practically constant, and an occasional stop is necessary. This means they are required to start under full load, and if the period of shutdown is of considerable length, the material sets and a heavy overload torque is required for starting. These conditions are most severe in the case of the auger machine.

As a general recommendation, it may be taken that for the machines where heavy starting is required, the wound rotor type of motor should be applied where over 50 h. p. is required. For machines starting light, where less than 50 h. p. is required, the squirrel cage type of motor can be used, although in many cases, clutches can be added to good advantage.

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Oxford, Mass., has a new sand-lime brick plant, which is turning out 20,000 brick per day. This number can be easily doubled by running the modern machinery of the plant to full capacity.

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## THE USE OF THE GAS ENGINE.

Both for the operation of all machinery and for single power units in the operation of pumps and hoists at the clay pits the gas engine is being used more extensively than ever before. The gas or gasoline engine is particularly suitable for operating pumps for the purpose of unwatering clay or shale pits and for effective use in driving hoisting drums for hauling clay cars from the pit to the surface.

The Otto Gas Engine Works, Philadelphia, Pa., is justly entitled to the consideration of prospective power users. The Otto people were the very first to build gas and gasoline engines in America, and the first engine manufactured by them was exhibited at the Centennial in Philadelphia, 1876. Then the company occupied a small shop with a very limited capacity, and one engine a week was considered very satisfactory business indeed. It, however, soon outgrew its limited quarters and built a much larger factory that has been increased in size from time to time until it now covers a city block and has a capacity of 2,000 engines a year, large and small.

The growth of this concern is due entirely to the acknowledged worth of its product. It has never been a big advertiser, as compared with some other concerns in the same line, but has received its business from buyers who became interested in the Otto through the efforts of some satisfied user of that engine. In other words, its customers have been its best advertisers.

Nothing but gas and gasoline engines are built in the big Otto factory, hence "their eggs are all in one basket." This means that they are obliged to keep their product up to the very high standard which they have set for themselves. The shops, being equipped for engine building only, would be of little use for any other purpose; hence a prospective customer can feel assured, that no matter how long he keeps his Otto engine, he will always be able to get repairs for it from the Otto factory.

In recent years, the brick and clay industry has discovered that a good gasoline engine furnishes a very satisfactory and economical power. The smaller establishments use the gasoline engine with gratifying results; it can be started quickly, does its work dependably and can be shut down without any stand-by losses when the power is not needed all the time. In larger establishments, the suction gas-producer plant has found favor and is conceded to be the most economical power obtainable, excepting, perhaps, the water wheel.

One prominent brick concern in Pennsylvania installed four large Otto engines in its plant and has been using them for many months with satisfaction and profit. The Otto Company is prepared to furnish units of all sizes up to 300 h. p.

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The Terre Haute Electric & Porcelain Co. has been incorporated at Terre Haute, Ind., with a capital stock of $25,000. The incorporators are W. T. Glover and Edgar R. Coleman of Terre Haute and James A. Hamilton of Salem, W. Va. The company will engage in the manufacture of electrical porcelain articles and other clay products, incident to the electrical trade.

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The new sand-lime brick plant of the Oklahoma Granite Brick Co., Oklahoma City, is now in operation turning out a high quality of sand-lime brick. The plant cost $60,000.

# ELECTRIFICATION IN CHICAGO

## Electricity Applied to Clay-Working Operations—One of the Most Hopeful Factors in the Struggle for Supremacy With Formidable Competitors of the Industry

In no part of the country is greater interest shown in the electrification of brick plants than in the Chicago territory. Within that territory there are now located some twenty-four active brick-making plants. Eleven of these are operated by the Illinois Brick Co., and three by the National Brick Co. A considerable number of these twenty-four plants have already been electrified to a greater or less extent, many of them completely, including the installation of generators, driving of the machinery, operating of the transfer cars and other equipment. This electrification was largely brought about through the installation of the Penfield brick setting system, which requires the use of electric transfer cars, electric cranes and electrical equipment for the operation of the brick setting device. In connection with the electrical installations, the yards have been modernized to the highest degree, and many of them now represent the greatest perfection in brick plant equipment, at least, so far as the manufacture of common building brick is concerned.

Immense Electrically Driven Transfer Car Which Holds Six Drier Car Loads of Brick at One Time.

Of the twenty-eight active yards in the Chicago territory, nineteen are electrified, using electric current for power for the operation of their transfer cars, traveling cranes and brick setting equipment. These include yards Nos. 1, 3, 5, 17, 22, 25, 30 and 35 of the Illinois Brick Co., the Chicago Heights, Maynard and Rogers Park yards of the National Brick Co. and the yards of the Calumet Brick Co., Curtis Brick Co., Manteno Brick Co., Chicago Brick Co., Cary Brick Co., Builders Brick Co. and Bach Brick Co.

The above yards are all equipped with their own generating plants and all use a direct-current of 220 volts with the exception of the Chicago Brick Co., which uses 110 volts.

All the Illinois Brick Co.'s yards have 75-kw. generators and the Curtis Brick Co. uses 50-kw., the Manteno 40-kw., Chicago Brick Co. 75-kw. and the three plants of the National Brick Co. 90-kw.

The Builders Brick Co. will soon install a larger electric generating plant of 50-kw. The Calumet Brick Co. is equipped for 40-kw. The Cary Brick Co. for 40-kw. and the Bach Brick Co. for 40-kw.

While the Chicago yards are not fully equipped electrically for the operation of all their machinery, yet there is no doubt that sooner or later electricity will be used entirely for all power purposes. In yards Nos. 1, 17 and 30 of the Illinois Brick Co., chain car elevator systems are driven electrically and in some of the yards, fans in the driers and pumps at the clay pits are driven by electric motors.

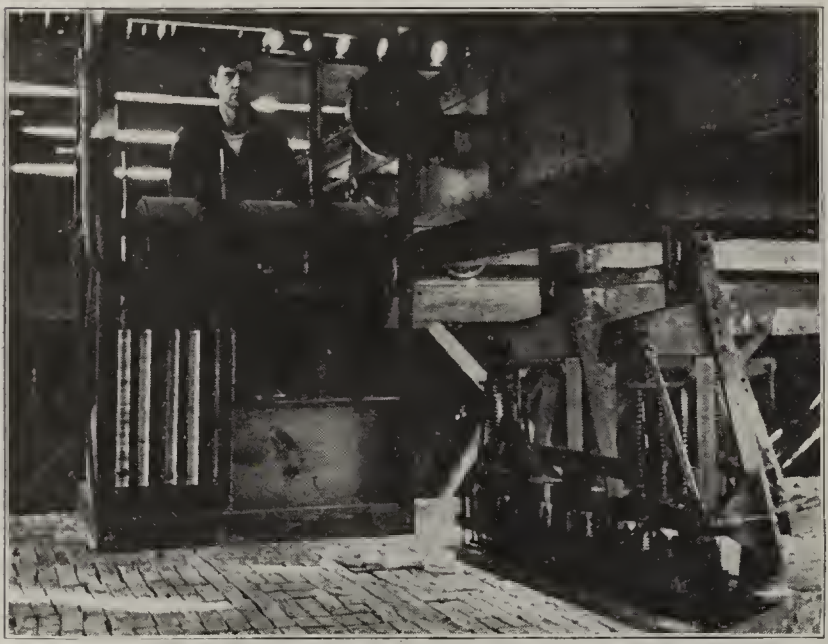
As in most of the yards steam is used for drying the brick, steam generating plants are required and it has not yet been found necessary to dispense with the engines for power purposes for the driving of the brick making machines.

In the yards of the Illinois Brick Co. the equipment is largely furnished by the Fort Wayne Electric Co., the Westinghouse Co. and the Northern Electric Mfg. Co. The other yards are using equipment furnished by the Westinghouse Co., General Electric Co. and the Fort Wayne Electric Co.

It is probable that all further improvements at the various Chicago plants which will be made, will include equipment for the electrical drive of all machinery. Originally the electrification of the Chicago brick yards was brought about through the installation of the Penfield brick setting system, which requires the use of electric cranes to operate the setting machine. It was found that the use of the brick setting device required the more rapid delivery of cars from the drier than was possible to secure through manual labor and it was thus found necessary to adopt electrical transfer cars, which moved with such speed as to keep the brick setter constantly supplied with loaded drier cars.

The highest perfection in electric transfer cars has been reached in the new transfer shown in one of the accompanying illustrations. This transfer holds six drier cars. This monster car which is capable of carrying over 6,000 brick at each load, is the latest and most striking evidence of progress toward the model brick plant of the future.

This new unit is a monster six track electrically driven transfer car, which is capable of carrying six cars of 1,024 brick each. The car is also designed to transfer the dry cars from the transfer car to the kiln track by means of its own power. This work has always been done by hand, in the past. Not many years ago the output of a small brick yard was not much in excess of what this monster transfer car will carry at one load, but at the Chicago yards where 300,000 brick a day is an ordinary day's run, the high capacity transfer car will be a welcome innovation and one that is much needed.



The Man Behind the Switch at the Plant of the Alonzo Curtis Co., Grant Park, Ill.

This new unit of high capacity was designed and built at the Bucyrus, Ohio, shops of the American Clay Machinery Co.

The length of the car is 47 ft.; width, standard gage, 8 ft. 2 in. It is equipped with standard railway gage and standard electric locomotive trucks.

The power for traction is two 15-h. p. motors in series parallel, giving two running speeds.

An auxiliary 10-h. p. motor provides for operating closing mechanism, which is used to push the cars on and off the transfer car and is equipped with an independent motor-driven Westinghouse air compressor for air brake equipment, each truck being equipped with a powerful air brake. The weight of this car is 30 tons.

In the cab, the car is built so that it can be operated from either side with suitable look out, so that the operator can spot cars on either side. The vibration is sustained on heavy springs on which each truck is mounted. The frame of the car is eight-inch "I" beams and lattice truss tied together with "I" beam verticals.

The car was received in Chicago this week and will be installed at one of the Illinois Brick Co.'s plants. The car will handle six dry cars of 1,024 brick each and it is expected will replace two triple track cars, which have required three men each, making six men in all. The new car can be operated by a motorman and one helper.

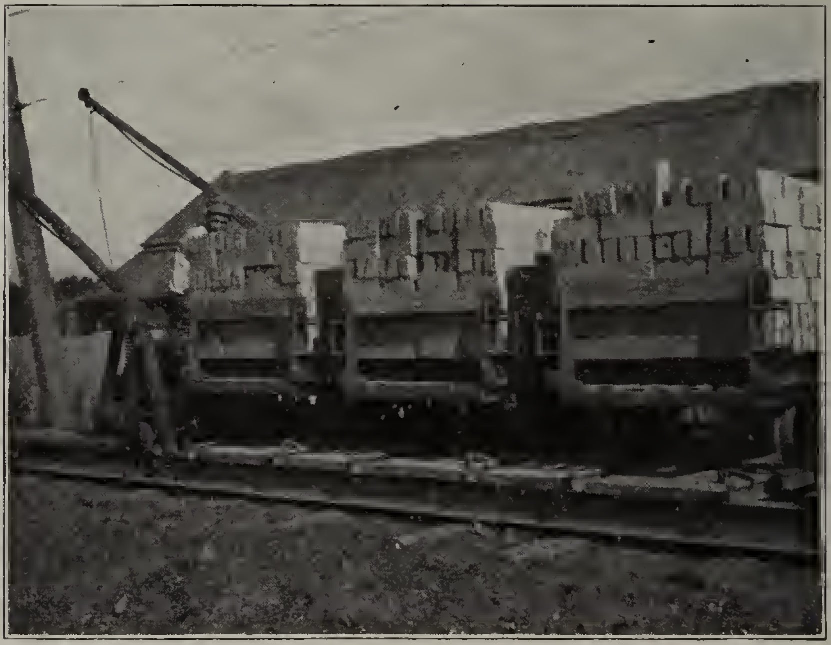
In the illustration, shutters at the sides of the openings will be noticed. These shutters form a special device for the purpose of closing up the car deck, bringing the rows of brick closer together, with just the right spacing for lifting with the brick setting machine. When the brick are set on the cars they are, of course, spaced widely to allow for the proper circulation of air between the brick in the drier. This necessity for bringing the brick into a more compact form was one of the troubles of this system, which has been very satisfactorily overcome through this device, and through the use of especially built car decks. The shutter device is operated while the transfer car is in transit from the drier to the kiln.

## ELECTRIC DIES.

In a recent communication Mr. Irving Dumm, manager of the Cheyenne (Wyo.) Brick Co., makes the following statements in regard to electrically heated dies:

"In placing my method of heating dies by electricity before the brickmaking public I am doing so with the idea that I am going to help some one in solving their 'heating problems,' as I know the subject is a serious one, especially when one is obliged to put in a steam plant just to heat dies on a brick press. No matter how small a boiler you have it is going to keep some man busy ,at least part of his time, looking after it, and with the keen competition that we have today we cannot afford to have men walking around the plant just putting in their time until that small boiler needs another 'fire.' I also believe that I am going to help the motor men out of the predicament that they were in, because they lost many a sale just because a little steam was needed, and such being the case, a whole steam plant was installed just to take care of that one feature, when if the brickmaker had installed motors he would have been able to buy power cheaper than he could have made it.

"In this day and age we must look for new inventions that will save in the first cost of installation and also cut our labor to a minimum, and in installing electric power we save in buildings, equipment and 'troubles.'"



The Penfield System Saves Money and Labor at the Alonzo Curtis Plant, Grant Park, Ill.

## WILL MAKE A CHANGE.

Jas. P. Williams, special Youngren kiln representative for the C. W. Raymond Co. of Dayton, has severed his conection with that company and has taken the management of the Copeland Inglis Paving Brick Co. of Birmingham, Ala. He has been connected with the St. Louis Hydraulic Press Brick Co. for many years latterly being in charge of the Union branch, the largest of the hydraulic plants.

# THE ELECTRIC KILN

## Wonderful Invention in Procss of Development Destined to Revolutionize Pottery Firing

Of all troubles that confront domestic pottery manufacturers, the question of kiln firing, either with gas or coal is, perhaps, one of the most perplexing. For many years coal was used, and then came the natural gas. Oil has also been tried, but this has not met with the approval of the trade, so it appears. Now comes the electric-heated kiln, and it is just possible that in later years all domestic pottery will be fired with heat obtained from that source. Successful experiments are now progressing, and these have attracted the attention of the domestic pottery manufacturers.

The art of the manufacture of pottery and clayware stands forth in the list of our mineral products, but still in many ways it is one of the most backward of our great industries. In the United States the value of the annual production of these wares, according to Federal reports, amounts to about $160,000,000. There being imported also $14,000,000 worth of the finer grades of porcelain each year.

The quality of our porcelain is no better, and generally not as good, as that in use in our grandfathers' time. The general method of manufacturing and firing is the same as has been in use for ages past.

Electrical power has not been used up to this time for pottery firing, for the reason that in all the present processes, the heat is used in a very wastful manner, and after being once used, is lost. Under these conditions electrical power could not compete commercially with coal or gas firing. But with kilns and processes designed for the use of electrical power, it is possible to use the heat over and over, thereby overcoming this difficulty.

In present practice, the ordinary kiln is circular in form, with a diameter of 18 to 20 ft., a height of 15 to 20 ft., the top being dome-shaped. This structure is built of brick, having flues in its walls and bottom for the conduction of the burning gases. The wares to be fired are first placed in saggers, the saggers placed in certain form in the kilns, care being used in arranging suitable spaces between the rows of saggers, for circulation of the gases. It is also often necessary to use fire brick supports, so that the saggers which are piled on top of one another will not crush and warp those upon which the greater pressure rests.

When filled, the kiln is closed and the doors bricked up, the firing begun, fires being built in furnaces in the outer walls of the kiln. The gases and fumes passing into the kiln, circulating around and between the wares, passing out through other flues into the air. Due to the fact that if the wares are heated too rapidly they will be cracked and injured, and also that the hot gases from the furnaces enter the kiln with strong drafts, it is necessary to use great caution in heating up these kilns to prevent injury to the wares, it requiring a number of days to heat and cool the kiln, besides the time required for filling and emptying it.

When the kiln becomes very hot, the outflowing gases must have as high temperature as the hottest part of the kiln, there, a great loss of heat energy is experienced when heating by means of hot gases.

The kilns being large, and heated by hot gases, forced into them from the furnaces, it is evident that parts of the kiln adjacent to the furnaces will be heated to a much higher temperatures than other parts, thus accounting for the great losses due to wares in the same kiln being partly over-burned and partly under-burned, requiring sorting of the product and the selling of not a small percentage of it as inferior production at reduced prices.

All present processes are carried on in an intermittent manner, the kilns being filled, fired, cooled and emptied. With each heating and cooling of the kiln the expansion and contraction of the materials forming its walls and lining causing a definite and costly deterioration of the structure.

Due to the manner of firing by furnaces and the accompanying gases and drafts, it is extremely difficult to control the heat in the kiln, or know exactly what heat is being attained in all parts, therefore the contents of a kiln, amounting to thousands of dollars, are sometimes lost, due to improper firing. It is difficult in the use of present methods to obtain control of heat, especially at high temperatures, it being practically impossible to obtain in satisfactory manner the high temperatures required for the burning of the finest grades of porcelain or domestic pottery.

There is in use another form of coal or gas-fired kiln so arranged that the gases do not come in contact with the wares but pass in flues through the walls of the kiln. These kilns are known as muffles, and on account of their wastefulness of heat are not used, except where absolutely necessary.

### Electrical Kiln.

In order to overcome these difficulties with the present kilns it is planned to fire domestic pottery in a kiln which is heated by electric power. Such a kiln has now been invented and constructed, and material actually fired in it, showing that it will meet the requirements of heat necessary for the burning of any kind of clay or ceramic wares.

The application of electrical power makes possible radical changes in the form of kiln construction, the entire absence of drafts and fumes, and therefore, the conservation of the electrical heat applied to the ware, also the handling of this ware by continuous process in small quantities.

The heat being transferred from the fired material to the raw material while they are close together, without the existence of currents of air or drafts, thereby requiring only a small fraction of the time for completing the operation, all firing in the kiln is done in a small area, easy of inspection and the heat is absolutely under control. In the heating chamber it is possible to obtain any heat desired, restricted only by the melting of the walls of the furnace.

The construction of the electric kiln for producing these effects is materially as follows:

A series of chambers built end to end, having two parallel tracks on which trains of fire-proofed trucks carrying the articles to be heated are moved in opposite directions, so constructed as to arouse the electric energy by transferring the heat from the outgoing finished products to the incoming raw material. The source of heat is located in the middle chamber and the temperature of the other chambers progressively decrease towards both ends of the kiln. The several chambers and their trucks are of the same length, and when the kiln is in operation each chamber is occupied by two adjacent trucks of the opposite moving trains.

The trains are moved simultaneously, at intervals, so that the trucks of each are successively shitfing from chamber to chamber of increasing temperatures up to the heating chamber, and then through chambers of decreasing temperatures until they leave the kiln. The periods between the shifting of the trucks are sufficient to permit the transfer of heat from articles on the one truck leaving the course of heat to those on the other truck in the same chamber until the two become substantially equal, so that when the finished articles leave the kiln their temperature is a little above that of the atmosphere.

The trucks have end walls which close the opening in the partitions between the adjacent chambers retarding the flow of heat from one chamber to another. The kiln walls, and the floor and end walls of the truck have dead-air spaces to retard the flow of heat through them. It is, therefore, apparent that the amount of electrical heat necessary to supply a kiln of this kind will be such as to merely make up the losses of radiation through the walls of the furnace, which by proper construction may be made very small. And the difference of temperature between the outgoing and incoming material, which by adjusting the number of chambers in line, may be decreased to any amount desired.

In this style of furnace, all materials receive exactly the same heat conditions and the products will, therefore, be perfectly uniform. Also, due to the fact that there are no moving gases in the kiln, or furnace, to discolor the wares, or to crack them by uneven heating and cooling, it is possible to heat and cool them very much more quickly; work having been accomplished in four hours that in ordinary practice takes from six to eight days.

Each part of the kiln is maintained at a constant temperature. There is, therefore, no heating and cooling of the linings which eliminates the deterioration of the kiln. From the experimental work thus far carried on, the indications are that the electrical firing will prove more economical than the present coal or gas firing, and that the time of firing for nearly all wares can be reduced from five to twenty times.

This form of kiln is also directly applicable to all forms of tempering and annealing of clay wares, glass, and other lines.

Briefly, the electric kiln will do this:

Fire clay or china ware in as many hours as it now requires days.

Eliminates losses due to uneven and poor burning, and makes possible a uniform grade of product.

Will produce and maintain the actual heat required.

Will produce higher temperatures than now possible.

Eliminates objectionable gases which destroy and discolor wares.

Makes possible the ideal continuous kiln, the furnace of which is always maintained at a constant temperature.

Eliminates the cost of piling and protecting the wares in large gas or coal fired kilns.

Cost of firing less than coal, because heat is used over and over. The greatest loss being radiation from outside of kiln.

Nine-tenths of the kilns never being heated to high temperatures and kept at a uniform temperature do not deteriorate.

In the developing of an electrical heating device, by means of which the firing chamber could be brought to and maintained at any desired temperature, with a minimum expenditure of energy, various heating devices were investigated, and the experimental work finally developed a form of resistor, which will not only satisfy the prime requisites of the problem, but is of very simple construction, and will last for long periods without renewal or repair.

Since the resistor is made of carbon, it must be protected from the atmosphere of the firing chamber, since this will, in general, be oxidizing in character; consequently the resistor is placed in a compartment directly above the roof of the firing chamber and the roof is constructed of a highly refractory material, which is also a good conductor of heat. For this purpose, we have found that recrystallized silicon carbide is the most suitable material.

The resistor is best formed of carbon rods which are stacked up to a height depending on the total length of the resistor, the diameter and lengths of the rods, the desired working voltage, when the electric current is passed through a resistor built in this way becomes heated to a temperature which, other things equal, depends upon the rate of generation of electrical energy. The resistor, as already pointed out, rests on a floor of recrystallized carborundum, this forming also the roof of the firing chamber, and on account of its high heat conductivity it quickly carries the heat from the resistor to the firing chamber. The side and cover of the resistor chamber are formed of refractory heat insulating materials, so that as far as possible, all heat generated in the resistor is conducted to the firing chamber.

The resistor being completely enclosed the manner of preserving it from oxidation is simple, for it is impossible to keep a stream of reducing gas, such as carbon monoxide, flowing continuously into the resistor chamber, so that the pressure within is slightly above that of the atmosphere. Thus even supposing some cracks or other air leaks are formed, after long working, in the resistor chamber, the ingress of air which might cause burning of the resistor carbons or terminals is prevented. And the leaks are quickly determined by the ignition of the outflowing gases.

The small furnaces or kilns so far built by John L. Harper, chief engineer of the Hydraulic Power Co., of Niagara Falls, N. Y., and also of the Cliff Electrical Distributing Co., of the same place, and worked to determine the feasibility of the electrical kiln idea has given highly satisfactory results.

Doubt has been expressed as to the feasibility of working the electric kiln or furnace with cars, as proposed, but there is no reason for this. Furnaces have been designed, and many are now actually working sucessfully, where cars are used in a similar manner. For example, we may refer to the Grondal furnace used for baking briquetts of magnetic oxide of iron, where cars as proposed in the Harper furnace are used and where a temperature of 1,350° is attained.

The electric resistor used in the heating of the Harper furnace can be so constructed as to have commercial permanancy.

Actual experiments have shown that a small firing chamber of 100 cu. ft. in capacity, can be maintained at a temperature of 1,250° C. (2,280° F.) with a current of about 30 kw., without taking any special precaution as regards heat insulation. A larger firing chamber would require more energy, but the increase would be in less proportion to the increase in cubical capacity.

Experiments have shown that a temperature of 1,400° C. (2,600° F.) can be reached and maintained in the firing chamber.

The question has been raised as to whether the heating of porcelain ware, for example, can be accomplished in a satisfactory manner, using electric heating. In order to test this, several varieties of porcelain ware were treated in the Harper furnace, and in every case, very satisfactory results were obtained. The varieties of material chosen were such that the furnace was tested at several different temperatures, from the low temperature in decorative work to the high temperatures used in making porcelain insulators.

# IN THE KANSAS GAS BELT

One of the largest of the common brick plants to be found in the Kansas Gas Belt is the Fredonia Brick Co., at Fredonia, Kans., located on the Santa Fe, and Missouri Pacific branch lines and on the main line of the Frisco railroad between Springfield and Wichita.

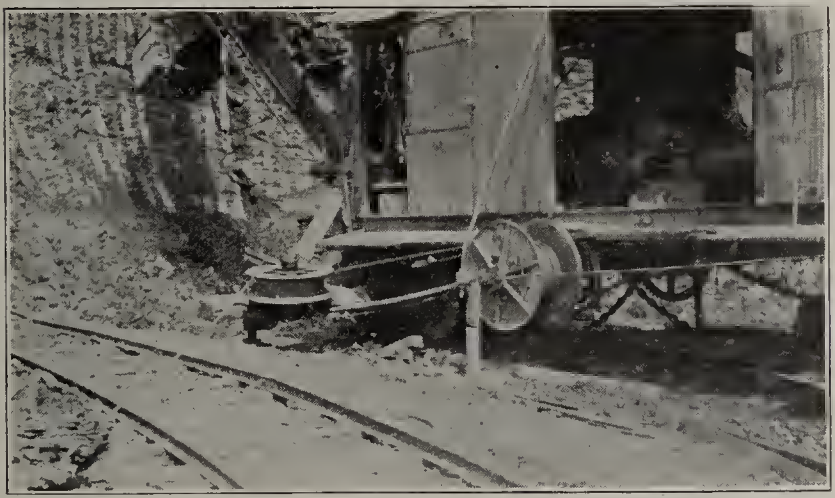
B. E. LaDow of Kansas City is president and general manager of the company; F. E. Wear vice-president and treasurer; David Bowie secretary and P. J. Oppen the superintendent. Sales offices are maintained in Kansas City and the small amount of the output that is left is handled by a number of agents in various parts of the country.

The company, besides the large acreage upon which the plant is located, has extensive holdings of productive gas fields and in this way has enough fuel in sight from its own wells to supply the demand for years to come. The shale which is dug from the bank with a Marion model 60 steam shovel is a hard blue shale without much free silicon in it. Taken directly from the pit, the shale is ground by three Eagle dry pans without either weathering or crushing.

One advantage that the Fredonia plant has, over many of the plants operating in a large way, is that the shale is obtained at a level slightly higher than the dry pans and is conveniently and economically transported to the grinding room by gravity, the incline being such that it is necessary to have a man ride on the clay car down the slope, setting the brakes until a certain point is reached, when the momentum of the car carries it up to the chutes. Running back toward the shovel after having dumped its 3-yd. load, it reaches the foot of the slope, where it is picked up by a cable wound on a drum at the side of the shovel. A friction clutch connects this drum with the intermediate gear on the steam shovel engine and in this way that machine is doing some work almost all of the time and the hoist, which is found in most of the plants, is eliminated.

The dry pans, of which there are three, were furnished by the Eagle Iron Works, Des Moines, Ia. A Fate special combined machine tempers the clay and delivers a stream of stiff mud to a Bensing automatic side cutter. When he first took charge of the plant, Mr. Oppen experienced trouble in making stiff mud brick, his experience having been principally in making dry press brick. He tried to slow down the machines, but more trouble came his way and in a last attempt to make the machine and cutter work he tried crowding it and has not as yet succeeded in getting the clay through too fast for the cutter and carrier belt to take care of it, and the entire set of machines run like clockwork. A drier, heated by

General View of the Plant of the Fredonia (Kan.) Brick Co.

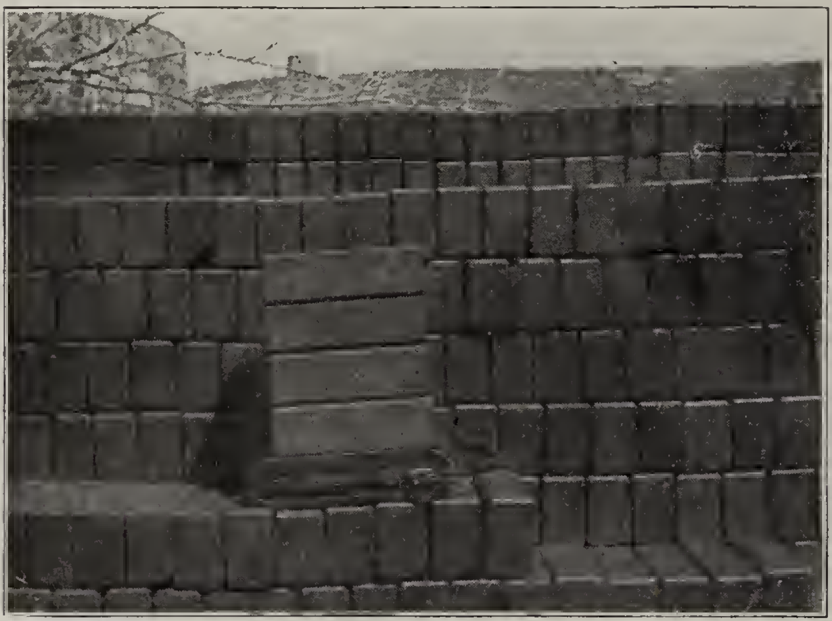

Manner in Which the Fredonia Brick Co. Mounted a Drum to Use Steam Shovel as a Hoist.

Loaded Car Running Toward Dry Pan by Gravity Power.

gas, finishes the brick and they are set in one of the 13 up-draft kilns, each having a capacity of 300,000 brick, where they are burned with gas for about four days.

Besides the stiff mud brick machine, the plant is equipped with one Fate Hummer tile machine which is used a portion of the time making four-inch drain tile for the farmers in the immediate vicinity of Fredonia.

The plant also has a Boyd Standard four-mold dry press and it is this machine which turns out one of the products which makes the Fredonia unique in this part of the country, if not in the entire country. The dry press is fitted with special mold boxes and makes a round edge dry press brick. These brick have only one square edge and because of this, when set in the walls, a perfect header can be secured if a small amount of attention is paid to the selection of the brick by the bricklayer. These round edge face brick are burned in two down draft kilns each having a capacity of 80,000 brick. Since this company began making these brick it has, according to Mr. Oppen, been unable to supply the demand which has been made. The brick burns to a light red and does not show any signs of vitrification. The 30 to 35 million common brick that are made here every year are of a good red color and are shipped to the north and west from Fredonia and in many instances to the larger cities east of the gas belt.



Round Cornered Brick, the Pride of P. J. Oppen, Supt. Fredonia Brick Co.'s Plant.

## CLAY PRODUCTS IN FAVOR.

As reported in our April 1st number, the United States Geological Survey figures show a large increase in production in the clay industry. The report shows the year 1909 was a record breaker for clay products—brick, tile, pottery, etc.—the value of the output being $166,321,213, as compared with $133,197,762 in 1908. The value was even higher than that of 1907 ($158,942,369), regarded as the banner year for the production of minerals generally. The United States Geological Survey has just issued an advance chapter on "Mineral Resources of the United States" for 1909—"Clay-Working Industries," by Jefferson Middleton—which shows the year to have been a remarkably prosperous one in this important industry. In brick and tile products every item except fancy brick, sewer pipe, and stove lining increased in value. In the pottery industry every item showed an increase. The imports of pottery showed a gain of less than 1 per cent, although the domestic product gained 23.53 per cent and the exports of high-grade domestic pottery likewise increased. The exports of all clay products increased 22.24 per cent. Every state and territory except Alaska, but including Porto Rico, is a producer of burned clay, and 42 states showed gains.

The following are the 10 states with highest recorded production for 1909:

| State. | Brick and Tile. | Pottery. |
|---|---|---|
| Ohio | $16,929,885 | $13,416,356 |
| Pennsylvania | 19,403,944 | 1,782,769 |
| New Jersey | 9,380,958 | 7,791,136 |
| Illinois | 13,505,898 | 838,555 |
| New York | 10,270,227 | 1,887,209 |
| Indiana | 6,744,295 | 900,928 |
| Missouri | 7,367,061 | 73,122 |
| Iowa | 4,846,706 | 51,990 |
| California | 4,312,590 | 124,575 |
| West Virginia | 1,159,627 | 2,350,470 |

The great growth shown in some of the clay-working industries during the last decade is interesting. Common brick increased from $38,621,514 in 1900 to $57,251,115 in 1909; vitrified paving brick from $4,764,124 to $11,269,586; front brick from $3,864,670 to $9,712,219; drain tile from $2,976,281 to $9,799,158; sewer pipe from $5,842,562 to $10,322,324; and fireproofing from $1,820,214 to $4,466,708.

## THE FOUR STATES COAL & COKE CO.

The plant which was recently built for the above company at Worthington, W. Va., is equipped with a 250-h.p. Westinghouse engine, 2 9-ft. dry pans, pugmill, brick machine and cutter from the Bonnot Co.; elevators, rotary screen, conveyors and a 12-tunnel drier from the American Clay Machinery Co. The company is now using up-draft kilns but is intending later to build down-draft or continuous kilns.

The plant was erected by the coal company with the purpose of furnishing material for their power houses, at their mines, also to supply brick houses for their employees to live in, the remainder of the product to be sold in the market.

## MORE FUNDS FOR DRAINAGE.

The Minnesota State Drainage Engineer makes a very strong appeal for more funds to carry on the work of the State Drainage Commission. The value of the work of this Commission has already been well established. The question of farm underdrainage has developed into something far greater than the individual interests or enterprises of the land owners. It has been found that only through co-operation and the aid of county and state government can drainage operations be carried on in a successful scientific manner. Where extensive drainage operations are carried on, elaborate trunk line systems must be built for the outflow from the individual properties and such trunk lines must be provided by county authorities. Where more than one county is involved in connection with an extensive drainage system, the state must take a hand not only in the engineering features of the undertakings but in the large costs involved.

In Minnesota, the U. S. Government co-operated with the State Drainage Commission in providing for the drainage interests. For this survey, the state alone expended over $17,000. The result of these surveys will be to facilitate large drainage operations and will prevent the danger of floods resulting from bad engineering.

During 1909 and 1910, the commission had under construction 15 state ditches costing upwards of $600,000.

Minnesota originally had 10,000,000 acres of swamp land and about one-fifth of the total area of the state is being transformed into valuable farm land through proper drainage systems.

## SAFETY DEVICES AT BUILDING SHOW.

The safety of workers in the building trades will be advocated in the Architecture and Building Show, in New York, by an exhibition of devices under the direction of Dr. W. H. Tolman, Director of the American Museum of Safety, who is a member of the show's advisory committee; a leading feature of the exhibit will be the patent scaffolding which is making the work of brick layers and stone masons as safe as that of street pavers, and which won the "Scientific American" gold medal. The building show, with its auxiliary conference of architectural and building interests, will open and occupy the New Grand Central Palace, May 19 to 27, inclusive, a short postponement from the original dates, pending the completion of New York's new exposition building.

New inventions applicable to the building trades will be a feature in the show, and these would be fascinating on the score of variety alone; they include a nail which automatically clinches in a fantastic way and an electrical tell-tale device for hotel offices which will indicate by flashes exactly where chambermaids, bell hops and other toilers are at any moment.

Machinery in motion proves a constant attraction to the trade show visitor and there will be some in the building show that will demonstrate the processes of making brick—all but the kiln burning—but it would take a good many of these brick to build a sky-scraper, for the machines are all models of less than a foot in height; the brick will be vest pocket size and can be carried away as souvenirs wrapped in cigarette papers. The high technicalities of engineering which will make the exhibition a Mecca for engineers will be somewhat relieved by the inventions and machinery, landscape gardening and models of moderate priced homes with other features designed to attract and hold the attention of the non-scientific general public.

## AN INTERESTING LETTER.

May 10, 1911.

Editor, "Brick & Clay Record":—The writer was both pleased and surprised to note the great interest manifested, at both of the big clayworkers' conventions, in the burning problem. Undoubtedly, the topic of greatest interest at the Chicago convention and one of great interest at the Louisville convention, was the continuous kiln. The clayworkers seem to realize that the time for a revolution in burning methods is close at hand, if it has not already arrived.

Many of those in attendance came with the one idea in mind of learning all they could of the burning question as it stands today.

Two exceptionally interesting papers on the subject of continuous kilns were read at the Chicago meeting. One of these by Mr. Eben Rodgers, of Alton, Ill., dealt with the Youngren continuous producer gas fired kiln. Coming as it did from a manufacturer who has used and discarded round down draft kilns, and who has spent many years in the careful study of continuous kilns and the use of producer gas, and who at the present time is using two large Youngren kilns, it was one of the most interesting papers of the meeting to the majority of those present.

Mr. Rodgers brought out the fact that the producer gas fired continuous kiln had long passed the experimental stage and was now an absolute success in every way. His kilns are burning paving brick at a saving, in the total burning cost, of from 50 to 70 per cent over the most efficient round down draft kilns in the country today. He said his kilns burn evenly from top to bottom and from side to side, are easy to handle and control, are cleanly, and it requires the services of but three men to handle both of his big units. A most interesting point brought out was that a chamber of brick was brought to a temperature of 1,800° F. or above, before the fire was put on it, simply by means of the waste heat. This is where the immense saving in the continuous kiln comes in.

Mr. Naugle, of Bucyrus, Ohio, had many things of interest to say of the open top continuous kiln. This is the oldest type of continuous kiln, being an improved clamp. Mr. Naugle said that a kiln of this kind recently constructed by him was saving 60 per cent of the fuel cost as compared with the clamp kilns which he replaced. He brought out the fact that it was strictly a kiln for burning common brick.

This unprecedented interest in continuous kilns, by the American clayworker, marks the beginning of a new era in the industry. The building of dozens of continuous kilns of various types at the present time, points to a time in the not distant future when the clayworker of the country who does not or cannot build a continuous kiln will be forced into retirement. Let it be hoped that we shall hear more and more of this "continuous kiln talk" during the next twelve months.

A. F. GREAVES-WALKER.

## CORED BRICK.

Cores in brick are a sign of bad burning, though it may sometimes prove too expensive to burn some clays in such a manner as to get rid of the cores. There is little or no difference in the strength of cored and clean brick, but buyers will take a lot of persuading to use cored brick when others can be obtained at the same rate. A cored brick often has unpleasant marks on the surface and is difficult to lay in bond, because of these marks.

Where lowness of cost is the first consideration, a clay containing much combustible matter can be burned much more cheaply if the cores are disregarded, because the heat of the kiln may be raised fairly rapidly. If cores are to be avoided, the rise must be slow about the third day of firing and must continue to be so until all possibility of coring has disappeared. With some shales, a soaking at a dull red heat for four days is only just sufficient to prevent cores being formed, and the fuel thus used amounts to a considerable proportion of the whole amount needed for firing.

The question of cores is entirely a matter of cost of production; they may be avoided in almost every case, if desired, but it is expensive to do so, and for many purposes this added expense is quite unnecessary. Indeed, it occasionally happens that the cored part becomes vitrified and so actually adds to the strength of the brick, producing what is practically a blue-brick interior with a red surface.

## A NEW DRIER CAR.

J. W. Bailey, superintendent of the Georgia Kaolin Co., Dry Branch, Ga., has secured a patent on a dumping rack drier car for drying cakes of clay from filter presses, which discharges its contents by dumping the entire load of about 100 cakes at one time, requiring about three minutes for the entire operation.

The car is hoisted to a dumping position by chains winding slowly on a shaft operated by a friction clutch belt driver, and not by hand device as shown in the illustration, although the hand device is entirely practical, but not so quick or easy of operation.

The clay from the car is dumped directly into the conveyor placed under a transfer track, and is thereby delivered to box cars or storage. Two boys can handle twenty-five tons of clay per day from the drier and put back into the drier the same number of cars as taken out and dumped, which, making an allowance for moisture, makes a total of over fifty-six tons of material per day of ten hours handled by two boys. This is only possible with this type of car.

As will be seen by the illustration, the construction is simple and inexpensive.

Mr. Bailey says they have been using the cars at their plant for the past 18 months and finds that the cost of drying the material has been reduced to a very low figure.

## NATURAL GAS IN KANSAS.

The government statistics for 1909 show that during that year the brick makers in the Kansas Gas Belt used 4,651,749,000 cu. ft. of gas, valued at $178,527. The gas was sold to the brick companies at from 2c to 6c per thousand cu. ft.

## CHANGES TO SOFT-MUD.

The Ft. Wayne Brick Co., Ft. Wayne, Ind., which has been making soft mud brick for several years, will change and hereafter make a stiff mud product. In making the change, the firm has just installed a No. 1 Premier brick machine, ordered from the J. D. Fate Co., of Plymouth, O., and a Bensing automatic side cut table. It is the intention of the company to make about 100,000 brick a day and changes are being made in the driers and buildings with this end in view. The general management of this plant is under the care of Edward Miller, of Ft. Wayne.

## A DRY QUESTION.

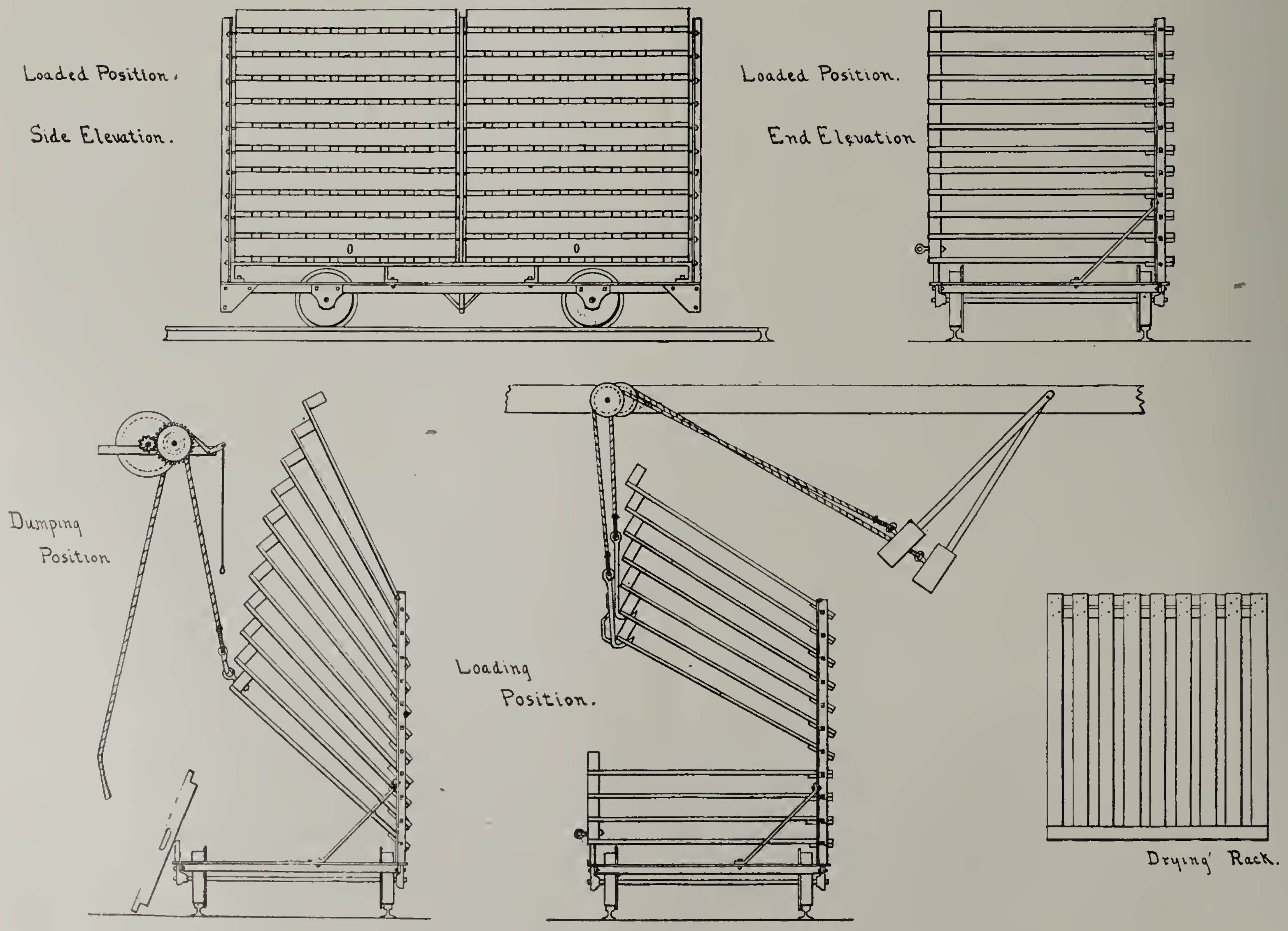
A subscriber asks us who is drying clay artificially for the manufacture of dry press brick. We would be glad to have those experienced on the subject give us some information.

## MAKE BRICK FROM LAVA.

It is reported that a plant for the manufacture of brick from lava is being erected at Honolulu by a San Francisco man.

Talk brick, advertise brick, keep brick constantly before the people, as the building material, and your business will increase beyond your fondest hopes or expectations.

The Bibb Brick Co., Macon, Ga., will expend $50,000 for the improvements to their plant. It will manufacture sewer pipes and terra-cotta in addition to brick. A large quantity of machinery was purchased.



Simply Constructed Patent Dump Drier Car.

## DRAIN TILE ADVERTISING BUREAUS.

Publicity, or general advertising by associations of manufacturers, is a subject now being earnestly considered by clay manufacturers throughout the country.

Drain tile manufacturers are coming to the front with a plan which surely should win out, because of the wonderful possibilities for extending the field of drainage.

Association advertising is of course essentially different from individual advertising, both in purpose and observable results and while individual advertising may at times not be warranted, the reasons would not apply as against associated interests carrying on an educational campaign.

In the case of the drain tile industry, a weather condition might arise during which, on account of drouth conditions, it would appear to be foolish for the individual to advertise for the purpose of calling particular attention to his tile, or its price.

The idea being educational, is not properly applicable to individual effort but to associated effort.

What could a Drain Tile Publicity Bureau accomplish that would profit the individual member?

Some few drain tile manufacturers take the stand that the farmer now knows that it pays to tile drain land and that most of the time the manufacturers can not supply the demand for tile; that it is consequently foolish to expend money to educate them as to the advantages of tile drainage, with the particular or special object of increasing demand. It is only necessary to say in opposition to such an argument, that the conditions effecting the tile market to a marked degree have been present within the past year. Early in 1910 the demand was active. A dry year followed and the latter part of the season of 1910 and the present season shows a very marked over-supply or lack of demand. It has been dry. The farmer has not been interested in tile because he tiles principally to remove standing or free moisture. He does not fully appreciate the benefits of tile drainage and knows practically nothing of thorough drainage.

Just so long as the farmer holds this idea in regard to drainage, we will have the spasmodic demand; the wet weather tiling and the crowding of the demand into a few spring and fall months.

It is not reasonable to assume that what has been true will continue to be so. Conditions change in every trade, and the supply of drain tile has increased very materially even over that of the early months of 1910, making a more careful consideration of the demand a necessity.

The field of trade promotion, or trade building in drain tile markets, is a very promising one. The main thing is to carry to the farmer and land owner statements of what thorough drainage is, what it costs and how it pays and to cite examples of success in the use of drainage to increase crops on naturally drained lands and to save the washing of soils on hill sides.

A well supported drain tile bureau, representing the drain tile interests of the Mississippi Valley, would be a source of most valuable information to the agriculturist and to the manufacturer of drain tile, as well.

In order to fully appreciate the possibilities of a market, the manufacturer should be thoroughly posted in regard to what his wares will do to benefit the consumer and, being so posted, he never attempts to do what would appear to be unreasonable. He does not attempt to force the ware on a market, unless he knows there is a possibility of the consumer using it to advantage, because he knows that he must force sales at a sacrifice which a year's good business and good prices will not make up.

It is not meant to convey that drain tile manufacturers do not generally understand the advantages of tile drainage, but that they have not been accustomed to telling what they know because of a lack of inquiry, and if asked might fail to answer in full and thus fail to create a strong desire on the part of the land owner to thoroughly drain his lands.

It is observable that associated advertising campaigns are being carried on in many trades. The reasons for the development of this style of advertising are apparent. The purchasing public is becoming more and more inquisitive. There is a tendency on the part of the consumers to look for something which they may invest in and effect an economy in their efforts. This is especially true of the farmer. At every turn, except in the use of drainage, he is shown how he can make money, how he can increase the productivity of his farm by some appliance or method. Farm lands are rapidly increasing in value and economic demands are consequently for greater per acre production; for more sure crops and for greater ease in cultivation. Thorough drainage is the surest way to increase crops, and it must be shown to the farmer by the promotion bureau of the associations.

A farmer who falls into the hands of the bureau will learn that by the use of a thorough system of drain tile he secures crop insurance in wet or dry seasons, or freedom from loss because of excessive rainfall or deficient rainfall; a lengthened season; deepened soil; conservation of soil on hill sides; removal of injurious acids from the soil; the carrying of fertilizers into the soil; the preservation of just as much water as is required to promote plant growth and that tile never takes away a drop of moisture that can be used by growing plants and that consequently dry weather drainage operations are favorable rather than dangerous. Knowing these things, and many others that can be truthfully told him, the farmer soon grows to see that no foot of his farm should remain undrained a day longer than absolutely necessary.

The opportunity to spread such knowledge is now knocking at the doors of the Central West tile manufacturers. It should be welcomed, because it is modern business to do so. The plan presented has been under consideration for some time by prominent tile manufacturers of Iowa and they have presented the plan to the Iowa Brick and Tile Association, where it was discussed and approved.

Competent advertisers are now working out the plan and the work is about ready to be launched. The support of the field is, however, essential and all companies, large and small, should immediately enter into the campaign. Write to the secretary, C. B. Platt, at Van Meter, Iowa, and he will send you information and blanks for your remittance.

# POTTERY NEWS

## GENERAL NEWS OF THE CRAFT.

The Chamber of Commerce of Parkersburg, W. Va., is offering a large cash bonus, a sum said to be about $20,000, for the location of a domestic ware pottery in that city. An official of the body in a statement said: "We have the matter pending, and it will not be long before the matter is finally closed." It has not been announced who is back of the new plant. Plans for the pottery are said to have been drawn by an East Liverpool architect. The plant will have a capacity of ten kilns, will be one story in height, and will be so built that additions can be easily made later if required, without stopping operations in any department. It is also reported, at Parkersburg, that a flint mill will be built as a part of the new pottery, which will be an innovation in pottery construction in this country. Fireproof construction will be followed entirely. The iron window frames will be another new feature in pottery building. So secret has the matter been kept, that it is said the plans have been drawn in the office of the men who are back of the movement. Officials of the Chamber of Commerce at Parkersburg refuse to give names of interested parties at this time.

The system employed by the Onondaga Pottery Co., at Syracuse, N. Y., is declared by pottery manufacturers to be the most complete of any in the United States, or Europe for that matter. In the warehouse bins there is a plus and subtraction system, so that every week end the "office" knows the exact condition of the stock. Every year the employes of the clay shops are given a two weeks vacation, and not a wheel is turned. Salaried employes are given two weeks also, with pay. Decorators and packers are given their turn with a vacation. Throughout the plant, system prevails in every department. It is also reported upon most reliable authority that no visitors are allowed to go through the plant. Isolated from any pottery districts of the country, the firm is kept to itself entirely. However, the Onondaga pottery is working to capacity and has been for years.

The Diehl Pottery Co. has been formed under the laws of Delaware, with a capital stock of $150,000 and the incorporators are Wilmington charger representatives, who for the present are protecting the "real" incorporators. Where the plant is to be built is not known now. It is possible a plant will be built in the western district.

Stoneware pottery manufacturers are awaiting with considerable interest the result of the hearing before the Interstate Commerce Commission held at Richmond, Va., April 17, when the stoneware pottery manufacturers presented arguments which sought to compel all express-carrying corporations to carry all kinds of jugs. Frank M. Ransbottom, of Ironspot (near Zanesville, O.), was the representative of the western stoneware pottery manufacturers at the Richmond hearing. The manufacturers express the opinion that their contention will be sustained and that the decision of the commission will be favorable to their interests.

The plant of the Marshall pottery at Marshall, La., which was completely destroyed by fire several months ago has been rebuilt, and was placed in operation a few days ago. Stoneware is made. The firm has begun to use gas for fuel instead of coal.

The report is current, but lacks confirmation at this time, that the electric porcelain manufacturers of the United States will soon establish a general uniform list for the manufacturing of all standard pieces. Many of these small pieces of electric porcelain are used for the same purpose, but are made differently. With the standardization of all these parts, the manufacturers will be enabled to work in greater harmony. Conferences have been held with this end in view and lists have been agreed upon, so it is said.

Fire of unknown origin caused a loss of over $1,000 to the plant of the Summit China Co., at Akron, O., a few days ago. It started in the warehouse. There was a scarcity of water and water had to be pumped from a nearby stream.

Delegates are being elected by all locals in the N. B. O. P. to the annual convention, which will be held in Atlantic City this year. All delegates must be elected during the month of May.

Stoneware pottery manufacturers of the western territory held a special meeting in the Ft. Pitt Hotel, at which time a banquet was a feature. Following this, the announcement was made that because of the increase in the cost of raw materials and other conditions, the prices of stoneware would be advanced.

Harry Vestal, for many years well known among the tile plants of the Zanesville (O.) district, has assumed the position of general manager of the business of the Kenilworth Tile Co., at Newell, W. Va. This firm is controlled by a number of East Liverpool men.

A slight difference existed during the last few days between the "dressing" girls at the W. S. George and East Palestine Pottery Co.'s. plants at East Plants, when the girls asked an increase in their wages from $1.12 to $1.25 per diem. Claim is made that the firm refused to talk the matter over with the girls, and grant the demands, and as a result a number of employes in other departments were unable to be at their benches, pending a settlement.

The idea of the construction of an electric kiln has not been given up, and during the last few weeks a fund has been raised to build a modern working electric kiln. Models on a small scale were found to work fine, but a large kiln is yet to be tested. John L. Harper, of Niagara Falls, N. Y., is back of the new kiln. He is an electrical engineer, and has had a number of pottery manufacturers working with him on the plan. It is possible an electric kiln will be built in the East Liverpool district this summer or during the fall.

D. E. McNicol and John A. McNicol, as trustees in bankruptcy for the Blue Ridge Kaolin Co., have filed an action in Common Pleas court at Lisbon, O., against the United States Fidelity & Guarantee Co., to recover $1,500 alleged damages.

During the last few years there has been a decided improvement and uplift in the sanitary pottery trade of the United States, and statistics show more sanitary kilns have been built in the last few years than there has been in the general ware branch.

During this spring and summer the sanitary kiln capacity of the United States is to be greatly increased. Bids are now being invited for the building of a number, and within a few weeks, contracts will be let.

# TRADE REVIEW

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### THE SMOKY CITY.

Pittsburg, Pa., May 10.—There has been a gradual, although steady improvement in the building and paving brick and block business in the Western Pennsylvania territory during the last month, and indications are that with continued good weather, construction and municipal work will advance more rapidly than heretofore.

In the building brick line, there is a decided improvement and the manufacturers are of the opinion that the season as a whole will round out into a good one. All of the building brick plants in the Western Pennsylvania territory are doing a fairly good business, and a considerable amount of brick is being shipped into the eastern and northern markets, which at this writing appear to be the best.

When the news was received here anent the victory the brick interest won over the express carrying companies, there was great rejoicing. The salient points of the decision of the Interstate Commerce Commission were published in the last issue of "Brick and Clay Record." For several years, the brick manufacturers have contended that they have been sinned against and when the proof was offered there was "nothing to it" but the manufacturers.

Although Western Pennsylvania brick manufacturers have been advised by their eastern selling agencies and agents that building is not up to normal, so far as new construction is concerned, and that because of this some of the Hudson river yards will not open this year because of the heavy cost of operation, prices are being pretty well maintained.

With smaller stocks in the Eastern markets, local manufacturers, who do a good business in the East express the opinion that a tendency toward higher price levels will materialize.

The four brick yards at Danville, Pa., which are under the management of John Keim, will resume operations at once. This company has just received an order for 250,000 building brick to be used in the construction of new buildings by the Magee Carpet Co., of Bloomsburg, Pa.

Three bee-hive kilns have just been added to the plant of the Ridgeway Brick Co., at Ridgeway, Pa. The kilns were built by Cowdrick Bros., of Clearfield, Pa.

The Butler Brick & Tile Co., has been formed by Jeff N. Boyle at Butler, Pa. The first capital stock is placed at $7,000.

J. A. Warheim, of Trenton, N. J., with a number of other clay and ceramic experts has completed a trip of inspection among the clay plants in the Kittanning district. The trip was for the purpose of examining the clay deposits in the Armstrong County (Pa.) territory. It is possible that after the reports of the party have been made to parties interested that a new plant will be erected in the Kittanning district.

The Preston Silica Co. has been formed at Philadelphia with J. T. Sutton, of Camden, N. J., as its president.

Operations have been resumed at the plant of the South Side brick plant at Punxsutawney, Pa., which is under the management of S. C. McQuown. All the stock on hand when the plant closed down last winter has been sold off, and the yards have been cleared.

Paving brick is to be made in the new plant which has been started at Lewistown, Pa., by the Saxton Vitrified Brick Co. Ground for the new plant has been broken. It is possible the construction work will be completed within three months.

C. B. Lawton, manager of the Sanitary Glass Brick Co., at Connellsville, Pa., has announced the intention of the company to increase the capacity of the plant. The property was recently destroyed by fire, and is now being rebuilt. The company has received enough orders during the time the plant has been idle to keep it in active operation for three months.

Stockholders of the Harrisburg and Steelton Brick Co. met at Harrisburg, Pa., and elected the following board of directors: J. E. Rutherford, Martin Cumbler, Dr. William H. Seibert, W. E. Abercrombie, C. W. Lynch, Joseph Bachman, Samuel Barley and C. C. Crumbler.

Work has started rebuilding the plant of the Fallston Fire Clay Co.'s plant at Fallston, Beaver County, Pa., which was damaged by fire.

A new tile plant at Paulsboro, N. J., has started operations.

Contrary to common experience of many other large local industrial corporations, the business of the National Fireproofing Co. has been keeping up well. A representative of the company says that for the year to date the bookings are fully up to the total received in the corresponding portion of 1910. The explanation is found in the activity of building operations in the east, and the increase in the agitation for better and safer methods of construction. Unless unforeseen conditions arise, the company expects to do as large a business in 1911 as it did last year.

The will of the late Henry W. Kurtz, formerly vice-president of the Harbison-Walker Refractories Co., who died recently at Reading, Pa., has been filed for probate at Clearfield, Pa. The estate, valued at $300,000 is placed in trust for 20 years. One half of the income derived therefrom is to go to his parents, and the remaining half is to be divided among his parents, brothers and sisters. In view of the fact that the property has been placed in trust, the Commonwealth of Pennsylvania will receive about $15,000 collateral tax.

The capital stock of the Franklin Brick & Clay Co., of Lewisburg, Pa., has been increased to $625,000.

New electric power equipment is being installed in the brick plant of the Van Omer Brick Co., at Pitcairn, just east of this city.

The Willette Co., of this city, has started the erection of a large clay plant at Fairmont, W. Va., which will be devoted to the manufacturing of clay pots and tiles for glass factories. Several buildings will be erected and will occupy a site 100 by 300 feet.

## THE CHICAGO SITUATION.

Chicago, May 10.—The looked for differences between the brickmakers and the manufacturers here came to a climax some days ago, and as a consequence 2,500 brickmakers are taking a vacation. The foundation of the real trouble lies in the fact that the manufacturers asked the men to work one hour per day longer at the same wage scale they have been getting. This the brickmakers refused to do, and the consequence was that they quit work While there are large stocks of brick on the yards, which were manufactured in the past few months, the situation is not greatly improved, because the teamsters will not deliver the brick to either railroads or buildings.

How long this will continue it is difficult to say now. There has been no material change in the situation since the strike, and the manufacturers seem inclined to let things take their course. No move on either side has been made looking toward a settlement, and the probabilities are that there will be a lapse of some time before an agreement is reached. The installation of brick handling equipment has been causing some change of sentiment, and this has no doubt had something to do with the whole affair.

The labor agitation as applied to general building lines here has become more widespread, and has had much to do with stopping work on practically all the large buildings, and some of the smaller ones. The trouble has spread to several trades, and there is little activity in building lines now. There is a great deal of work on the boards, and much under way, as far as it can go. In the loop district, there is being demolished a number of structures to make way for modern skyscrapers. This includes about a dozen, and some of the old landmarks are being torn down. In a word the face of the city, in the business section, is undergoing a number of notable changes just now.

However, there can be little done except to demolish the buildings until the labor troubles have been settled. There has been some slugging and more intimidation on the part of the strikers, but the matter is now in the hands of the police. It is to be hoped that there will soon be a change for the better, as the present situation is doing much to demoralize trade.

The reports among the manufacturers with reference to business is that there has been a very fair demand for clay products outside the city. In Chicago there has been a decreased demand, as there is no use in purchasing materials when they can not be placed in the buildings. The situation is far from pleasing on this account, and it is hoped that the matter will soon be brought to a satisfactory termination.

Face brick, common brick, sewer pipe, fire brick and other lines are in fair demand only. Prices remain about the same as they have been for the past month or so. If it were not for the strike there would be no real cause for any complaint, and this is the only thing that is bothering the clay operators at present.

The Northwestern Terra Cotta Co. reports, through Mr. Wagner, that the demand for architectural terra cotta is holding up very well with them. Naturally there has been some decrease in the demand consequent upon the labor difficulties, but not as much as might be expected. They are operating about as usual, and the indications offer a fair prospect for business. They have not quite completed the rebuilding of that portion of the plant that was destroyed by fire some months ago.

The Carey Brick Co. is tied up. There is not a wheel turning at the brick plant, and there are no deliveries being made of brick. The report from the office was to the effect that there was no possible time given out for a settlement of the differences between the brickmakers and the manufacturers. They are simply waiting the outcome of the differences. As to when this might be looked for they were not able to suggest. The offices of the company have been moved from the fifth to the fourth floor in the Chamber of Commerce.

The Jenkins & Reynolds Co. find little activity in face brick lines now. Their representative says the labor situation in this city has practically tied up the demand for face brick. Notwithstanding the fact that there is a great deal of work in prospect, there can be little accomplished in the way of results until the labor situation is settled.

The Bonner & Marshall Co. find that there has been a very fair demand for face brick, particularly for its "Oriental" brick, of late. Practically all this has come from other sections. The company reports building prospects are pleasing enough, but that there is no hope of a better demand, for the present at least. They are simply making as great an endeavor as possible, but are hopeful of a change in the tide before many weeks pass.

The National Brick Co. remains, like the other companies, tied up. There will be no operations in the brick line until the labor matter has been settled. This company is making no effort to do anything, and is simply waiting the outcome of the situation. It being impossible to make deliveries even though there are brick on the yards.

The Midland Terra Cotta Co. has moved its offices from the Teutonic Building, Fifth Avenue and Washington Street, to the Chamber of Commerce, on the fifth floor.

The S. S. Kimbell Brick Co. reports that there has been little activity with them in the past few weeks and that the labor trouble here has tied up the demand for face brick.

The Chicago Retort & Fire Brick Co. continues as it has in the past to enjoy a nice demand. Conditions are satisfactory as far as they can see now, and there is no reason to count on other conditions in the near future.

Thos. Connelly says there has been a more active demand for sewer pipe in the past month than previously. Prices are still about what they have been, and there seems to be no likelihood of a change in this respect soon. The plants are being operated full and they have no surplus stocks of sewer pipe on hand now.

The Western Clay Products Co. finds a fair demand for clay commodities, but there has been no material change in the situation.

## THE GREAT NORTHWEST.

Sixty thousand brick, most of them in exceptionally good conditions after forty years of service, were taken from the vaults of the old City Hall, Minneapolis, Minn., and were given away to the first comers to be used in building homes.

M. J. Moran of the Red River Valley Brick Co., Grand Forks, North Dakota, will operate only three of its brick yards at present as on account of the large amount of brick manufactured last year, the company does not find it necessary to operate all of its yards.

A company of workmen have been busy getting the plant of the Washburn (Wis.) Brick Co. ready for work. Several new varieties of construction brick will be added to the output and the company is also contemplating the manufacture of paving brick.

John Wilson has purchased the La Grande (Ore.) brick yard, has it in operation and is furnishing the brick for the new high school at Union, Ore.

The large brick works at Feeley, Minn., has been put in operation and it is stated that the company has a market for all the brick it can produce.

At the annual meeting of the Newberg (Ore.) Brick & Tile Co., Mr. Gus Guddat was elected president and W. H. Dryer vice-president. C. C. Cady was elected as director to succeed Chas. H. Lucas, who has disposed of his interest in the company.

It is reported that a large deposit of silica near Murray, Utah, is to be taken over by a large concern and a plant established for the manufacture of silica brick.

The Missouri Slope Brick & Tile Plant at Dickinson, N. Dak., was sold at mortgage sale and was bid in by Mr. Richards. It is understood that the company will be reorganized.

Press brick from the Black Hawk Clay Mfg. Co. will be used for a new business block to be located at 20th avenue, St. Paul. These brick have recently been used for a large number of business blocks in Iowa, Minnesota and Wisconsin.

The Granger (Wash.) Brick & Tile Co. has resumed operations for the season's run. Thirty acres of clay land have recently been purchased and the company are planning to double their capacity, which is now five or eight million brick a season. They will furnish the brick for the new depot being built by the North Coast Railroad at Granger.

Mr. J. T. MacKintosh has resigned his position as general mangaer of the Little Falls Fire Clay Co., Tacoma, Wash.

The Schroeder Brick & Lime Co., Shakopee, Minn., has recently installed a new up-to-date brick machine with a capacity of 45,000 tile.

The Reliance Brick & Tile Co. has been organized at Waterloo, Iowa, with a capital of $400,000. W. B. Law is president; P. W. Smith, vice-president; H. E. Law, treasurer, and R. A. Law, secretary. The company has secured a site of 100 acres at Belle Plaine, Iowa, for the establishment of a brick and tile plant with a capacity of 100,000 brick daily.

If local capital to the extent of $6,500 and certain site concessions are extended, Richard O. Walker, of Seattle, will invest $18,500 in the establishment of brick and pottery works at Centralia, Wash.

Ground has been broken for the construction of the plant of the Lewiston Brick & Tile Co., at Lewiston, Mont.

It is reported that contractors at Calgary, Alta, fear a shortage of brick for the season's work. It is estimated that between twelve and fifteen million brick will be required to complete the work already contracted for, and there is but one brickmaking plant in the city, which cannot begin to supply the demand.

Having installed a number of improvements in its brickyard at Audubon, Iowa, the Tramp & Tramp Co. has commenced its spring work.

John B. Canbanis has opened a Minneapolis office for the Ludowici-Celadon Roofing Tile Co., at 323 Plymouth building.

The city council of Minneapolis has passed a resolution authorizing the city engineer to buy 75,000 brick in the open market.

Louis and Neil St. Anthony have opened their brickyard at Clarissa, Minn., for the season. Among the improvements recently installed in the plant is a new brick machine.

Jos Albrecht has opened his brickyard at Belle Plaine, Minn., for the season.

D. A. Brunet will put up a one-story building at his brick plant at Lidgerwood, N. D.

The Brick Co. at Pierre, S. D., has ordered a new machine for the manufacture of hollow brick, and will have it ready for installation about the first of June.

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## DAYBREAK AT HAND IN THE EAST.

New York, May 10.—Hudson river common brick manufacturers are beginning to see daylight. Agents are getting $5.50 to $5.75 at dock in bargeload lots. Raritan rivers bring almost the same price here, although there is a slight advance in the Newark market. Hackensack, South Jersey and Connecticut brick do not figure in the current market at all.

Front brick, paving brick, fire and hollow brick are bringing normal prices for this time of the year, but concessions are very liberal. Enamel brick distributors are unable to get more than $70 to $75 for English sizes and $65 to $75 for American sizes. Seconds and kiln runs bring only $45 to $55 in a dull market. Porcelains are a drug on the market at present. This is not the fault of distributors or in any shrinkage in the popular esteem in which they are held. It is merely a case of a backward season and backward building operations, combined with a decreased volume of apartment houses.

Fireproofing terra cotta companies say the demand for their product is increasing. One big company reports a heavier call for this class of fireproofing than prevailed at this time last year. This probably is due in part to the fact that the floor arches and fireproofing in the new Municipal building, calling for more than 1,500,000 sq. ft. of this material, has kept the kilns of the National Fireproofing Co. busy almost to capacity during practically all of the winter and spring dull season.

Tile interests say that they have found the volume of business in their line better than in the same period last year. Drain tile specialists say they are selling more of this product owing to the development of localities heretofore thought undesirable for estate and country residential purposes. Drain tile is opening vast tracts in Long Island and also in the farming sections of Richmond borough. The roofing interests are not quite so optimistic as to the immediate future. Competition is very keen, according to an official of the American Brick & Tile Co., but the large number of new contracts coming out within the last fortnight is thought to bring increased business to these interests. They point to the fact that as only high-class buildings are now going ahead, the call for tile roofs will increase from now on.

### Manufacturers' Association Almost Perfected.

The situation in the common brick industry is perhaps the most interesting. According to the general news in the market the new brick manufacturers' combination is expected to be incorporated and ready for business by July 1st. About 90 per cent of all the manufacturers in the Hudson river district have already paid their dues. The others, while making a show of resistance, are thought to be complaisant and will be in when it starts operation.

Frankly, the situation is not bright for the agencies here in New York. If the present plans go through all selling will be conducted by the new association's representatives here. The difference that will be saved to the manufacturer, according to those already in the association, is that between $150,000, represented in selling costs per year, and $10,000, which is the probable cost of selling with the proposed new system in operation. This is easily figured on the basis of annual output in the Hudson river district, which is approximately 1,200,000,000 brick a year and the usual allowance of a shilling a thousand to agents.

The plans of the association, as far as they have been made public, contemplate appointing local agents in the new selling combination. The association will guarantee to dealers a uniform price for so many months and also a flat winter price. This price, it is said, may be fixed tentatively next week, at about $6.25. Every precaution has been taken to avoid conflict with the Interstate Commerce and the Anti-Trust laws, and it is now believed that with the aid of Senator Brackett the legal difficulties have been removed and the association is now ready to go ahead.

Absolute secrecy is being maintained by all parties interested in the project in this city. "Brick and Clay Record's" correspondent, however, learned that the meetings which have been held along the river from time to time have borne much fruit, and even the leased yard men have been won over.

### Past Attempts at Organization.

An organization of brick interests has been attempted many times. Interests as powerful as J. P. Morgan & Co, Oakleigh Thorne and other Wall street powers have tried to bring about some control of the Hudson river brick market, and, in fact, the entire supply coming into this market. The difficulty has always been that there has been no way to control the outside companies, that is, the Connecticut and the New Jersey manufacturers. As soon as the current market price was put to a certain point which allowed a liberal profit, the outside brick makers would ship brick into this market from the surrounding states. They have even been known to be shipped here from Delaware. One by one they have passed out of existence.

The notorious Samuel Parks, the convicted labor leader, who died soon after being sent to Sing Sing, tried to control the brick market by organizing the brick yard help as skilled labor. The manufacturers themselves killed this attempt by tying up every building operation in New York City until the demands of the unions were withdrawn.

Then the brick makers themselves tried to organize to control prices and supply, but they were assailed by the trade press and were finally forced to abandon the attempt. Then came the organization of the Hudson River Brick Manufacturers' Association, which sought to accomplish the same result through the social side of the business, but this, too, failed to give the desired results and that passed out of existence recently.

The dealers or distributors of brick in this market are talking of retaliating against the contemplated action of the manufacturers up the Hudson by tightening their own organization, but they have taken no definite action so far.

### Market Conditions Much Brighter.

The current market conditions in all kinds of brick are much better than they were a fortnight ago. Distributors, here, generally watch the steel market for indications of increasing business. Within the last two weeks the total steel tonnage contracted for in New York City has been considerably in excess of 50,000 tons. The new Woolworth building, which will be 56 stories high and occupy one-half an entire city block in the down-town section, took 22,000 tons on Monday. Seventy-five days are allowed for delivery, so that the 14,000,000 common brick that will be used in this operation will begin to be delivered by about the first of August. One big company closed contracts for 17,520,000 common brick for delivery this summer in Brownville, a suburb of New York, where 438 new houses, averaging 40,000 brick each, will be erected in the present season. The deliveries on the new Municipal building of 12,500,000 brick began this week, and the deliveries on the Greeley Square hotel, which will take more than 8,000,000 brick, will begin by about the middle of June.

Arrivals since April 15 have been 248 cargoes and the sales have been 237, or 86,800,000 common brick have come into this city and 81,950,000 have been sold. This is approximately 20,000,000 less than the total volume during a similar period last year.

### Up River Plants Starting Up.

About 75 per cent of the 119 plants, in the Hudson river district, have started up. Last year at this time they were all operating. An attempt was made to ascertain from each plant the exact number of machines that will be operated this year The manufacturers themselves do not know. The nearest estimate obtainable is that about 75 per cent of capacity will be operated on the present demand. If an improvement comes later, then more machines will be operated. The whole program is based upon the actual demand in New York.

Practically 50 per cent of the total number of yards now operating up the Hudson began work last Monday, May 7. The other plants may not open until June 1.

The first new brick in 1911 will probably come into this market on May 23rd. This is about three weeks later than usual. There are still 160,000,000 brick in the sheds up the river.

### Brickyard Strikes of Short Duration.

Almost all the employes of the Jova, Rose, Atlas and Arrow yards at Newburgh went on strike last week, but they stayed out only one day. The county authorities, fearing a siege of rioting, hurried deputies to the scene and drove the men all back. The action on the part of the laborers was ill advised, since hardly any of the manufacturers are in need of help now. Many of them are in the position of welcoming a strike so as to postpone resumption of operations temporarily. Few have sent south for employes this year and most of the yards will run short-handed. The plan of the new association, heretofore mentioned, is to allot so many brick to each manufacturer along the river, and when he has made his stated amount to shut down. If this arrangement proves feasible, it is probable that the price paid to labor this year will be not more than the rate paid last year, if that. The men went back to work without making a single demand.

### Boosting New York Brick Show.

R. C. Penfield, president of the American Clay Machinery Co., of Chicago and 50 Church St., this city, was in town this week with a delegation of Chicago brick makers, who took a trip here to look over the Eastern situation and to get away from the turmoil incident to the strike in the Illinois brick centers. He was the guest of Mr. Jova of the "J. J. J." Co. at luncheon today, and earlier in the week visited some of the plants up the river. He was struck by the different methods in use here, but he said he was more impressed with the need of a clay products show here in New York.

Mr. Penfield is chairman of the committee arranging the big show in the Coliseum in Chicago, which is to be held in March, 1912. He told "Brick and Clay Record's" correspondent that that show was going to be along distinctive lines, and when asked what his plans were for bringing the show to New York said:

"There's no reason why New York should not have an exhibition like the one we're going to have in Chicago. That's why we're going to try to get the Grand Central Palace next year, not this, and give a show there. We want to see how it is going to succeed in Chicago first.

"When I tell you it is going to be a clay products show, it will be that and nothing else. The trouble with the cement shows is they are all machinery. Now we're going to cut machinery out of our program altogether. We are going to show the public and the builder and the architect the enormous possibilities of working in clay products. If we fill up the hall with machinery what are we going to accomplish? Nothing. We will show the best things in the clay products line, and you may take my word for it that it will be a show worth seeing.

"We've got the entire clay products exhibition that won the prize at the World's Fair. We are going to get the school children out by motion pictures, showing how brick are made, and we will interest the architect by conducting a competition for the best building laid up in clay products. The public in general will be looked after by a special program which we do not propose to give away now.

"Yes, sir, we're going to make brick talk and talk loud."

## NEW ENGLAND NOTES.

Boston, Mass., May 10.—The influence of the fine weather upon the demand for brick is very noticeable. Small orders are increasing in a very satisfactory way and in the opinion of many close observers three weeks more of spring weather will bring along quite a good deal of real important business.

The plant of the Brookhaven Press Brick & Mfg. Co. is one of the busiest in this section, shipments since January 1st average a car a day and enough orders booked to insure a continuance of the record. The company has erected additional kilns to take care of the increasing demand.

The Perry Brick Co. has been awarded the contract for supplying all of the sidewalk brick for the present year at Somerville, Mass. The New England Brick Co. is to furnish the sewer brick.

The electric kiln for potteries is being given a trial at Niagara Falls, N. Y. A company has been formed to build a large working kiln for actual demonstration. More complete information with drawings and illustrations will appear in a later issue of "Brick and Clay Record." At present, the plan is in the experimental stages.

## NEWS OF THE SOUTHWEST.

The Texas Fire Brick Co. has moved its general sales offices from Corsicana to Dallas, Tex., where it has engaged commodious quarters.

The Muskogee (Okla.) Dry Press Brick Co. opened its plant sometime ago which has a capacity of 33,000 press brick a day. R. F. Courtney is president of the company; J. R. Startzell is secretary and S. J. Allen superintendent. Electric power is used and the brick are burned with gas.

The Sunset Brick & Tile Co. has acquired additional property at Gonzales, Tex., where its plant is situated.

A company of Marshall and Gilmer men have organized a company for the manufacture of brick at Marshall, Tex. The company has a capital of $40,000 and expects to establish a plant to manufacture 50,000 brick daily. Among the organizers are W. H. Pugh, Gilmer, Tex., and H. B. Pitts, of Marshall, Tex.

The LaFayette Coal and Brick Co. has been incorporated at Kansas City, Mo., with a capital stock of $150,000 by Homer P. Allen, S. E. Snyder and J. E. Wilson.

The Beebe (Ark.) Brick Mfg. Co. has begun operating its plant for the season and is contemplating a rushing business. It has already booked quite a number of nice orders and from the present outlook, feels that it will not be able to supply the demand for its brick.

The Republic Brick & Construction Co. has been incorporated at Springfield, Mo., with a capital stock of $10,000.

The Cheryvale (Kan.) brick plant, which has been idle for some time, has been put in operation at full capacity, having been leased by the Buff Brick & Mfg. Co., Buffville, Kan., which company controls a line of plants in southern Kansas and Oklahoma. The local manager at Neodesha will have charge at Cherryvale also.

Mr. Thomas Townsley is developing a new industry in Marion county, Mo. He is mining clay on his farm west of Woodland and burning brick and tile. Mr. Townsley is an experienced tile man and says the clay he is using is the finest he ever worked with. He finds a ready sale of the tile to the farmers in the vicinity.

## CLAY SCRAPINGS.

The Abingdon (Ill.) Sanitary Mfg. Co. have torn down two square kilns which have proven unsatisfactory and will use the same material for building three bottle shaped kilns, which will be of the down-draft type and equipped for burning oil.

The property of the Wisconsin Brick Co., Madison, Wis., representing a value of approximately $40,000, was recently purchased by a syndicate of local men. The new owners will put the factory in shape at once to resume operations for the season's run.

The Krick-Tyndall factory at Decatur, Ill., are running their plant day and night in the effort to keep up with orders which are rapidly coming in.

A slide of earth at the clay pit of the North Iowa Tile Co., Mason City, Ia., wrecked the steam shovel and injured the engineer, probably fatally.

Improvements have been added to the plant of the C. Miller & Sons Brick & Tile Co., at Clermont, Ia. The company expects to double its output of 1910.

Mr. D. E. Mann of Laporte City, Ia., has purchased a half interest in the brick and tile works at Garrison, Ia.

The Sheldon (Ill.) Brick Co. have received a carload of steel cars to be used in the dry kiln which has a capacity of 40,000 brick every 24 hours. The old kilns are being torn down.

### WEST VIRGINIA.

Wheeling, W. Va., May 10.—Orders for millions of paving brick and paving blocks have been placed with West Virginia manufacturers for delivery this spring and summer, and this means that all plants will be kept working to capacity.

In the New Cumberland district, both sewer pipe and paving plants are on the active list, and the Mack plants are especially busy. This well-known concern has been more or less active throughout the entire winter or closed season.

At Fairmont, W. Va., ground has been broken by the Willetts Co., formerly of Pittsburg, Pa., for the erection of a new glass clay pot plant, which will be the largest of its character in the United States.

The Westchester Real Estate Co., of Fairmont, will go into the brick business, and it has just completed the formation of a company with $50,000 capital stock. H. B. Clark, of Fairmont, is at the head of this company. The location of the new plant has not been announced.

Improvements are being made to the plant of the Claymont brick works in the New Cumberland district. It is proposed to work this factory to its capacity during the coming season.

A fire damaged the plant of the brickyard of Henry Smith & Son at Baltimore, Md., causing a loss of $3,000.

The brick plant started over a year ago by Mayer Bros. at Frostburg, Md., has been completed and from present indications promises to become one of the town's leading industries. The works are extensive and cover considerable ground. The main building is 80x40 ft., and there is a large kiln with a capacity of 90,000 brick.

Dalton Bros. Brick Co. is the name of the corporation that will succeed Dalton Bros., who have been operating a large brick plant at Hopkinsville, Ky.

Those interested in the clay and brick business in the West Virginia district have just been advised that this state ranks eighth in importance in the clay industry of the South, producing clay products to the value of $3,500,000 annually. The manufacture of pottery of various kinds is an important feature of the industry in West Virginia. Progress has also been shown in the development of the other lines of clay products.

## THE PACIFIC COAST.

San Francisco, May 10.—For several years past the San Francisco building material men have started the season with high expectations, only to be disappointed later on, but this year it certainly looks as if the early optimism was well founded. Aside from the Panama-Pacific Exposition and the gradual return of normal business and financial conditions, there is no evident reason for any unusual activity, yet building records have been steadily improving since the first of the year, and the amount of work contracted last month was a great improvement over the same period last year. It is believed that this month will at least show no decrease, and from the amount of inquiry, and the number of plans being drawn, there is every indication of a fair summer's business. The improvement is more noticeable in the interior of the state than in San Francisco, and there is every evidence of an unusually rapid growth in many of the outside towns, material being needed for many public buildings, as well as for business structures of all descriptions. In San Francisco the work in prospect includes a few large warehouses and institutional buildings, but the principal business is on apartment houses, most of which are of a better class than those erected in the last few years. Pressed brick and terra cotta are being used to a very large extent in such buildings.

There has been no further advance in common brick, which is still being sold at $6.50 per M. at the local yards. At this figure the business is not altogether unprofitable, and manufacturers, on the whole, are pretty well satisfied. It is still possible that a further advance may occur within the next few weeks, as the present output is closely sold up, many manufacturers having disposed of their output in advance. The total output around the Bay is a little larger than last month, owing to the resumption of work at some of the outside kilns, but the strong demand in the interior prevents any excessive quantity from being shipped here. One of the largest local plants, which was tied up last month, is again in operation, having some large municipal contracts to take care of, but the output is entirely taken up on these jobs.

A general feeling of satisfaction also prevails among the manufacturers of pressed brick and terra cotta. Few notably large contracts for these materials have recently been closed, but small sales have been very gratifying, and quite a number of substantial jobs are being figured, while large deliveries are still being made on old work, both here and in outside towns. There is probably more activity in this line than for several years past.

Since the introduction of "tapestry" brick in the east, all the Coast manufacturers have been experimenting with the production of similar lines, under various names, and have obtained some very pleasing results. This type of brick is gaining some popularity, one of the latest jobs being the facing of the First Presbyterian Church building at Sacramento and Washington streets, the contract for which was taken by N. Clark & Sons.

Gladding, McBean & Co. have about completed their work on the white glazed terra cotta and polychrome work with which the new Hearst building is faced from the second floor to the top, and are just commencing deliveries on a new job, the partition terra cotta for the same structure.

The United Materials Co., agents for the Los Angeles Pressed Brick Co., reports business very active in a general way, having taken several fair contracts for the various materials made by the Los Angeles firm. This company is also booking a large business for the Port Costa Brick Works, a common brick plant, which is now in full operation, with a larger output than ever before.

The Steiger Terra Cotta & Pottery Co. reports a large amount of figuring at present, and is keeping its plant busier than for some time past. This company has brought the matter of freight rates on pressed brick, etc., to the attention of the State Railroad Commission, and has secured a reduction on shipments from here to Sacramento. The former rate was much higher than from points in the Sacramento valley to San Francisco.

The demand for fire brick has increased very rapidly in the last few years, and the output of several old plants, and a few new ones, is readily disposed of. The Ione Fire Brick Co. started operations in a large way April 10, after the winter shut-down, and will have its first kiln ready for shipment in a couple of weeks. Mr. Hidecker, the head of this concern, says the product this season will be better than ever, and accordingly expects a ready demand for all that can be turned out.

The Livermore Fire Brick Co., which started work last year, now finds itself oversold, and new inquiries are still coming in. It is preparing to put up three 30-ft. down-draft kilns with a capacity of 60,000 brick each. The plant has been handicapped by seepage water in the elevator pit, but this defect is now being remedied. The company has leased a fine clay bed in Calaveras county, Cal., and has made a contract for the transportation of the material at low rates. A shipment of 50,000 of its brick was recently sent to Tacoma, Wash.

The Vallejo Brick & Tile Co. is trying a new mixture for paving brick, by which it hopes to avoid the former trouble with laminations, and also to increase the toughness of its product. Some imported material is mixed with its native clay for this purpose. The first kiln made by this process is now under fire, and will be out next month. If the experiment is successful, it will place this company in a position to supply about all the pavers used locally. The ordinary run from this plant is still finding a good demand for sewer lining.

The Oakland Paving Brick Co.'s new plant near Niles, Cal., has been in operation since March 24, but will probably have nothing to put on the market for some time, as the first of the output is to be used for new kilns, etc.

The Temescal Clay Products Co., which recently purchased a lot of clay land near Corona, Cal., now has most of its machinery on the ground at Los Angeles, where it is starting the erection of one of the largest plants in Southern California. Its building will be three stories high, covering an area of 360 by 180 feet, and the machinery includes two sewer presses, four dry pans, four wet pans, two represses, an auger machine, an automatic brick cutting machine, pug and ball mills, etc. Nine down-draft kilns and four muffle-kilns will be built. The company will make sewer pipe, brick and terra cotta, and sanitary ware.

Marcus H. Merrill, a resident of Stockton, Cal., for 59 years, died at his home in that city April 10. He and his brother, Bernard, were pioneers of the brick industry in California, having started several of the earliest kilns in the state. He was a native of Connecticut, coming to California in 1852 at the age of 23.

AN Atlas Engine will not make better bricks, but it will likely make more of them.

ATLAS ENGINE WORKS
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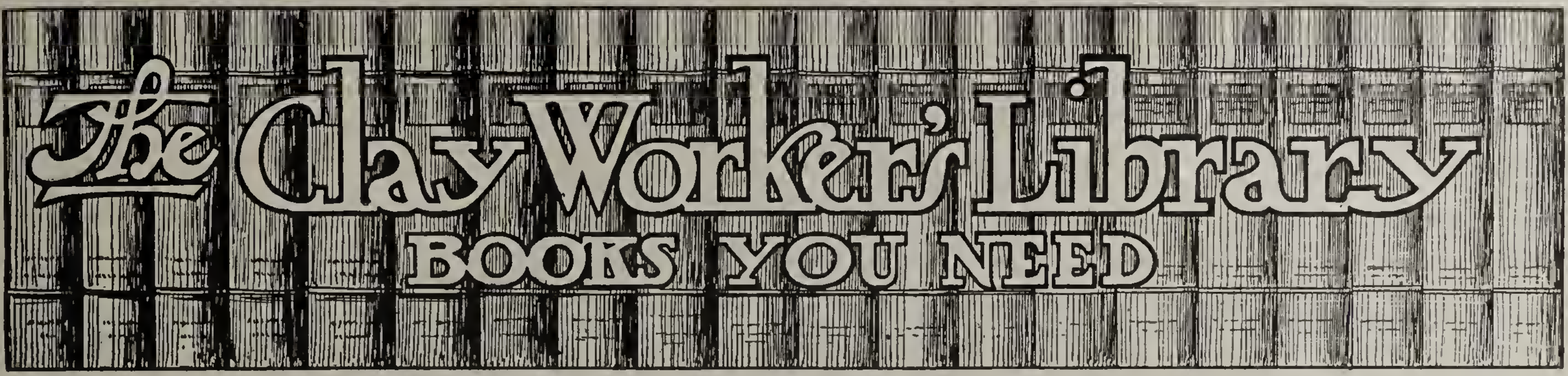

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"Seger's Collected Works," as issued by us, contains a collection of articles by Seger, that we think to be of the utmost value to our readers, and you could make no more profitable addition to your library shelves than by securing a copy of this work. Some of the articles are as follows: "Chemical Constitution of Clays," "Manufacture of Brick from Pulverized Clay," Some Investigations with Regard to the Coloring of Brick," "Drying in Inclosed Rooms," "What Properties Render Clay Especially Suitable for the Manufacture of Clinkers and Paving Brick," and many others. Write for Table of Contents.

**Seger's Contains 304 Pages** **Bound in Silk Cloth** **Size 6x9 in.** **Price $3.50, Postpaid**

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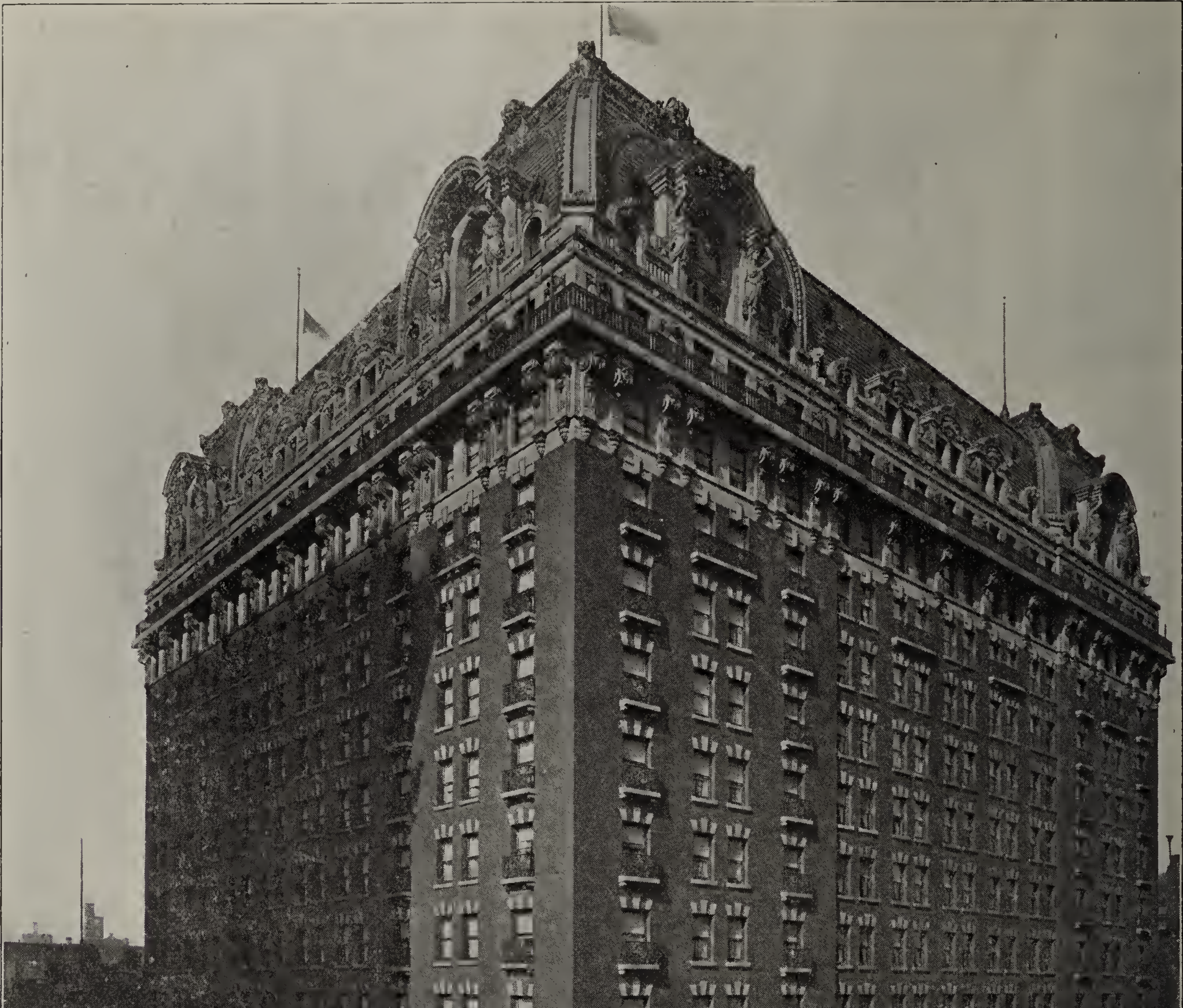


A HOUSE OF CLAY—BUILT TO DEFY TIME AND FIRE
Chicago's Splendid New Hotel Sherman, Cost $3,000,000. Large Quantities of Burned Clay were Used in the Building, Including 500,000 Face, 3,500,000 Common, 500,000 Hollow and 140,000 White Brick as Well as a Vast Quantity of Terra Cotta

(*Text on Page 543*)

VOL. XXXVIII—No. 11

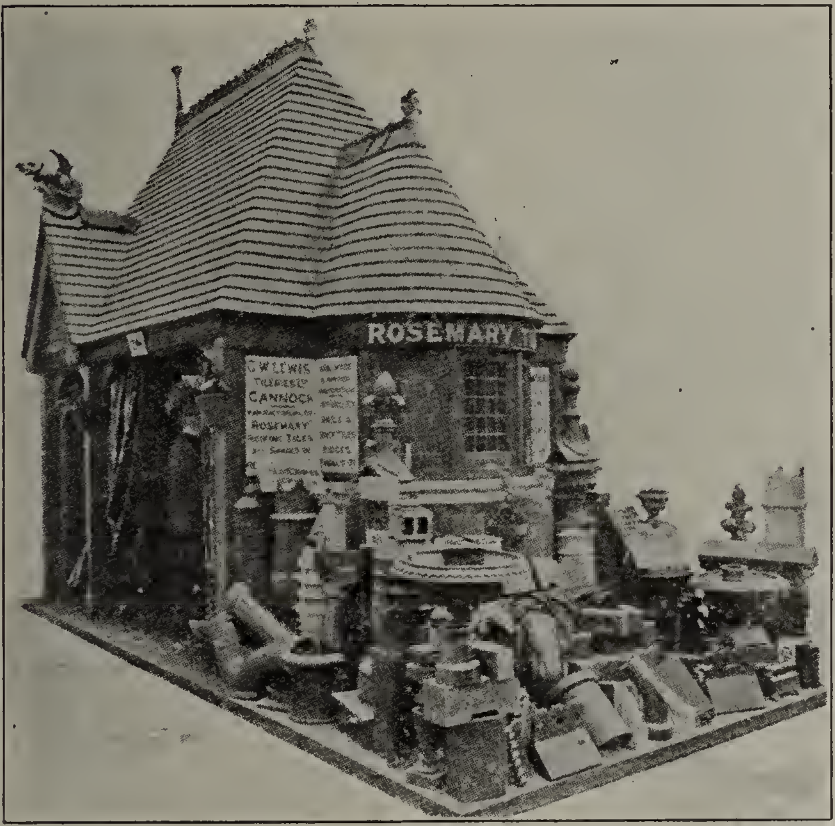
BRICK
AND CLAY RECORD

JUNE 1, 1911

# THE BRITISH CLAY SHOW

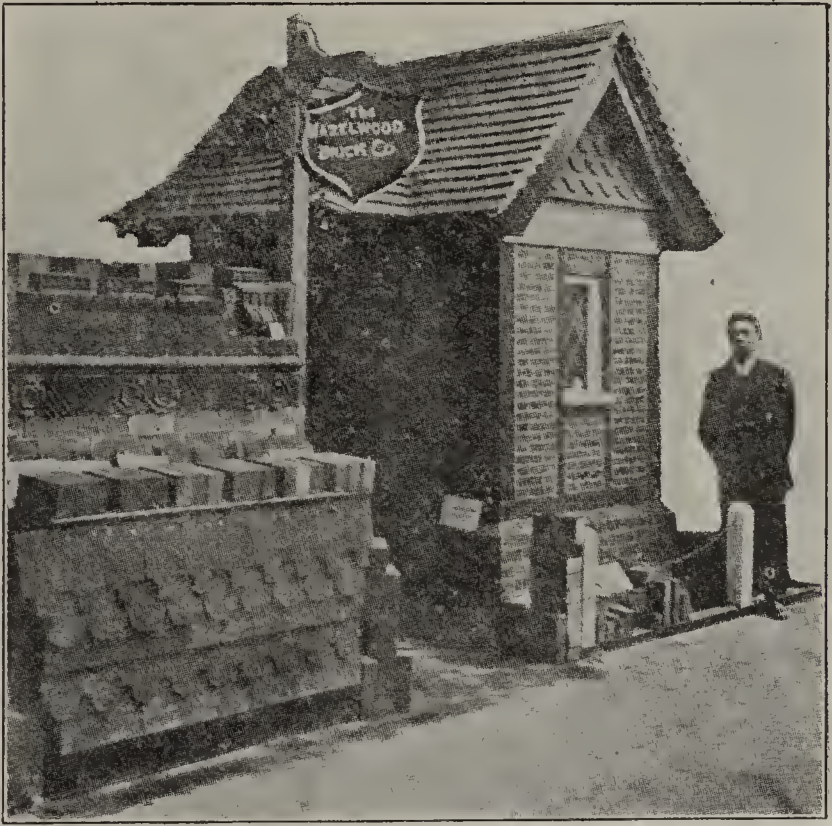
## Wonderful Improvements in Clay Products, an Encouraging Feature of the Industrial Building Exhibition Recently Held at the Olympia, in London

While we Americans are wont to boast and swell up like "pouter pigeons" over our progressiveness and enterprise, in some things we will be obliged to admit our British friends can set us an example worthy of our imitation. If there is one thing we Americans pride ourselves on, it is our methods of publicity and just why the clay manufacturers have shown such backwardness in taking up with the exhibit idea so prevalent at the present time, is more than can be understood. Our English brethren have shown much alertness in the advertising of their wares through the method of public exhibits, for many years past. These exhibits have attracted world wide recognition and have resulted in giving remarkable impetus to the clay industry. The notable improvement in the quality of goods in each successive exhibit is only one of the distinct advantages which have been gained by these exhibitions.



Bungalow Built of Rosemary Tile, Which Are Made in Thirty-Two Shades.

Members of the architectural profession attending these exhibits embraced the opportunity afforded and received much benefit and many practical suggestions as to pleasing combinations of material and colors. Another benefit which is largely due to the gathering of the clay workers at these exhibits has been the breaking down of the walls of suspicion and distrust which have formerly existed between clay workers and has resulted in the rallying together of all the forces of the trade, for upbuilding and forwarding the interests of the industry.



Neat Exhibit Showing Red and Purple Hand-Made Brick and Roofing Tile.

### Improvements Over Former Shows.

Those who have had the pleasure of visiting the great British Building Trades Exhibition, at Olympia, in 1909, which was such a marked success, and who again witnessed the exhibition which took place there, this year from April 22nd to May 6th, were agreeably surprised at the wonderful improvement shown in the products exhibited. This was especially noticeable in the glazed tile exhibits as compared with those of former years. This improvement was by no means confined to the product of a few firms; even the most famous have not been content to rest on their past successes but have by continued experiments obtained considerably greater perfection of surface in the relatively common wares. This was particularly marked in the glazing of sanitary wares, which was formerly done in a very unsatisfactory manner. These defects were said to be due largely to lack of care in the manufacture, rather than to lack of technical knowledge, but whatever the cause, the defect has been overcome to a measurable degree and in the exhibition just held, there was scarcely an article of sanitary ware which was not of first class quality, making an agreeable impression upon the visitor, which necessarily means increased trade in these lines. That this improvement has been the result of a vast amount of experimenting cannot be doubted and indicates that clay workers are now devoting the same attention to their glazes that enamel iron workers are paying to their enamel.

Glazed tile were shown even more extensively than the past year and their beauty has been increased in a remarkable degree. This was observable in the absence of the tiring masses of glossy tile which had been replaced by those of soft modulated tones and tints with a finish similar to that of the Greek marbles. In the matter of the coloring of these tile, there has been a notable striving after new color effects, particularly striking were those of a mottled or variegated nature.

THE RAVENHEAD SANITARY PIPE & BRICK Co. Ltd
RUSTIC FACING BRICKS by Protected Process
Works Ravenhead St Helens & Upholland Nr Wigan Lancashire
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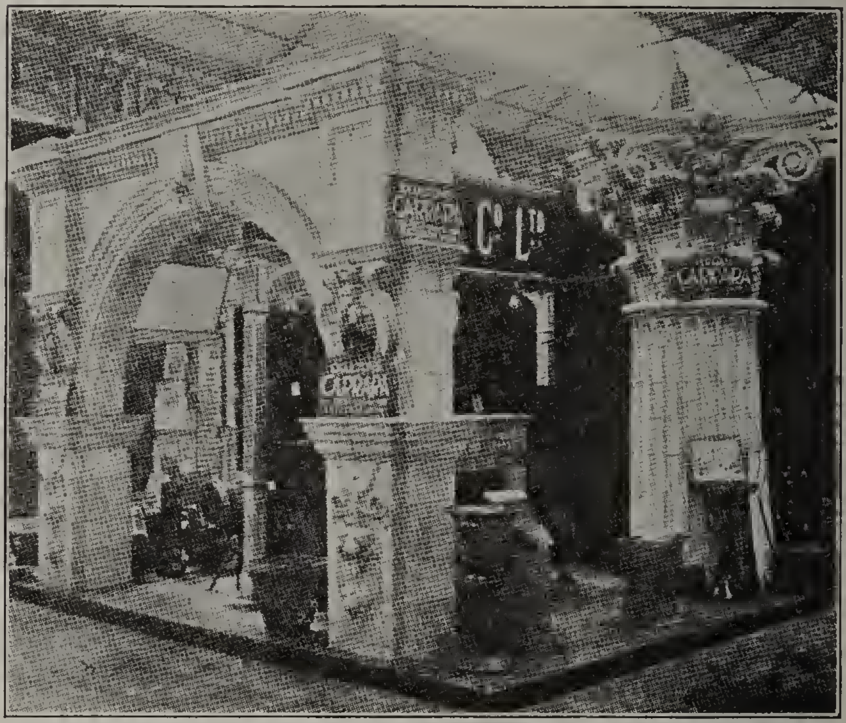
Pavilion Made of Rustic Face Brick, the Wavy, Rough Surface and Blended Coloring Giving the Appearance of Well-Preserved Age.

The display of face brick was much larger than usual and here again the change in the nature of the product was very marked. Some four years ago it was noticed that hand-made brick were increasing in favor but the machine made brick was making a hard fight to retain its popularity. In this last exhibit these face brick, representing the firms of the South and Southeast portions of England, consisted almost entirely of hand-made brick, some of the exhibits of these being very imposing. Several brick making firms went to the expense and trouble of preparing exhibits especially designed to represent very ancient brick work. The success of their attempts in this direction was remarkable for the exactness of the imitation of the attractive old and weathered brick.



Artistic Exhibit of "Carrara" Terra Cotta, Made by Doulton & Co., the Capital Being Especially Noteworthy.

The exhibits of architectural terra cotta offered under a variety of special names such as "Carrara," "Ceramic Marble," "Denora," etc., showed the high state of technical efficiency which has been reached in the manufacture of this popular building material.

The same rate of progress characteristic of most branches of clay working, was not seen in the roofing tile exhibits, but nevertheless, a substantial improvement was evident, especially in the matter of color. One exhibit in particular showed a thatched brown tile which was exceptionally effective. Several firms showed a gray tile which was a great improvement on the glaring red of former years. In the interlocking tile some slight improvement was noticed in the shape of the tile but not to any marked degree.

Garden Walls and Statues in the Gothic Style.

Owing to the fact that almost all of the manufacturers exhibiting brick and tile have their works situated south of Birmingham, has shown the managers of the exhibits the importance of holding an exhibition in a more northerly part of the country, and it promises well for the forthcoming exhibition, at Manchester, next spring.

### Splendid Results.

As the value of an exhibition of this kind is measured largely by its results, the opinion of those who exhibited is of particular value. These exhibitions being largely a matter of advertising, the manufacturer is enabled to meet the purchaser and explain to him in person the value of his wares. Also an excellent opportunity is afforded to educate the general public, who have given the subject little thought, as to the superior merits of the products exhibited.

At the British clay show, almost every clay worker exhibiting said they had received more than the usual number of inquiries and a number of representatives were bemoaning the time occupied in writing such long lists of names and orders. In fact, it was apparent to anyone who made inquiries that those who occupied stands at the great biennial show, profited largely in consequence. This is a matter for congratulation because it shows that the purchasing public is gradually being educated to realize that exhibitions, if properly conducted, afford facilities for obtaining specific information and for inspecting the goods which could not readily be afforded in other ways.

The placing of products of rival firms near together, shows the relative qualities of the goods exhibited, enabling the clay worker who is developing a new branch of his trade, to see how his product compares with that offered by competing firms. This comparison is especially useful to the maker of fine face brick, glazed tile and all finer qualities of clay products. If he will visit the exhibits of other firms with an unbiased mind, he cannot fail to profit by comparing the various products as to excellence of finish, etc. He may have no desire to copy them, in fact, such a course would hardly be fair, but he can gain new ideas, and thoughts will be suggested as to the greater perfection of technic and specific excellence which characterizes the work of these high class products.

### The Institute of Clay Workers.

The annual meeting of the Institute of British Clay Workers took place during the course of the building trades exhibition. The meeting was unusually well attended, as the members had seized the opportunity of visiting the city to see the magnificent collection of exhibits at the Olympia. Some excellent addresses were given, the one by Mr. George Andrews, the president, being an exceptionally able one. He spoke with great weight upon the value of organization and combination. His observations along the line of competition were, that cut-throat competition can only result in low prices that do no good to anybody, except the cheap builder; moreover, the accumulation of stock, which almost invariably follows, continues the depression of the market from one year to another; and if, as frequently happens, the striving after cheapness lowers the quality of the product, permanent harm is done to the class of brick affected. The discussion which followed the president's remarks proved the extent to which his hearers sympathized with them. Indeed, it looks as if associations will soon be formed in many brick centers on the continent. The traveling clay-working scholarship, which was founded at the meeting, and the question of State insurance, in connection with which some valuable suggestions were made, were among the subjects discussed.

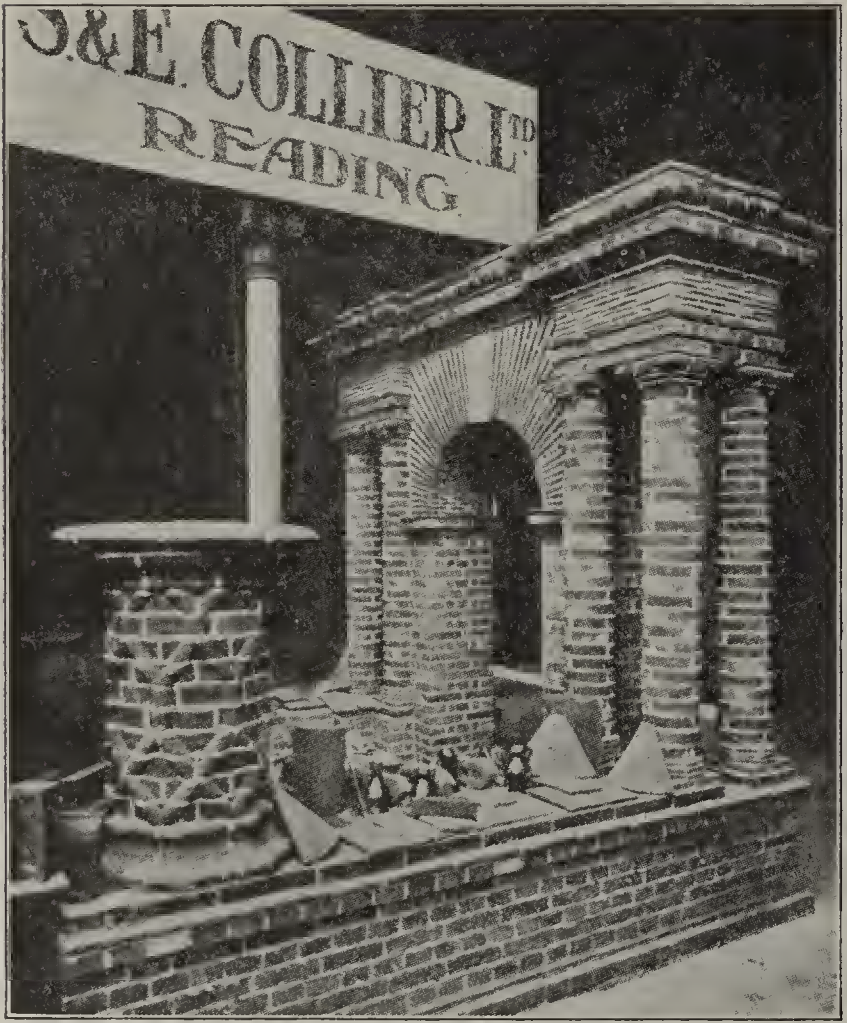
Another interesting feature of the Institute was a paper on "The Lessons of the German Trip," being a review of a trip to Germany made last year by members of the Institute. Mr. Andrews, the president, has been a dominating influence in the Institute, having had wide and varied experience and being possessed of a dominating

Group of Swedish Clayworkers at Olympia.

and resourceful personality, as well as a man whom people trust and admire.

### The Annual Dinner.

The annual dinner was held at the conclusion of the Institute at the Trocadero Restaurant, Piccadilly, followed by the usual toasts. Mr. Conquist spoke, for the Swedish members, saying that their much diluted Viking blood had been made to flow more strongly and quickly, by the wonderful things which they had seen exhibited at Olympia, and also by the many beautiful examples of English brick work which they had been able to ebserve in London and that they would, like the ancient Vikings, return home enriched by the many costly treasures of recollection and instruction. We take pleasure in reproducing the photograph of the Swedish clay workers at Olympia, whose faces show evidences of the thoughtful and studious minds, characteristic of the nationality.

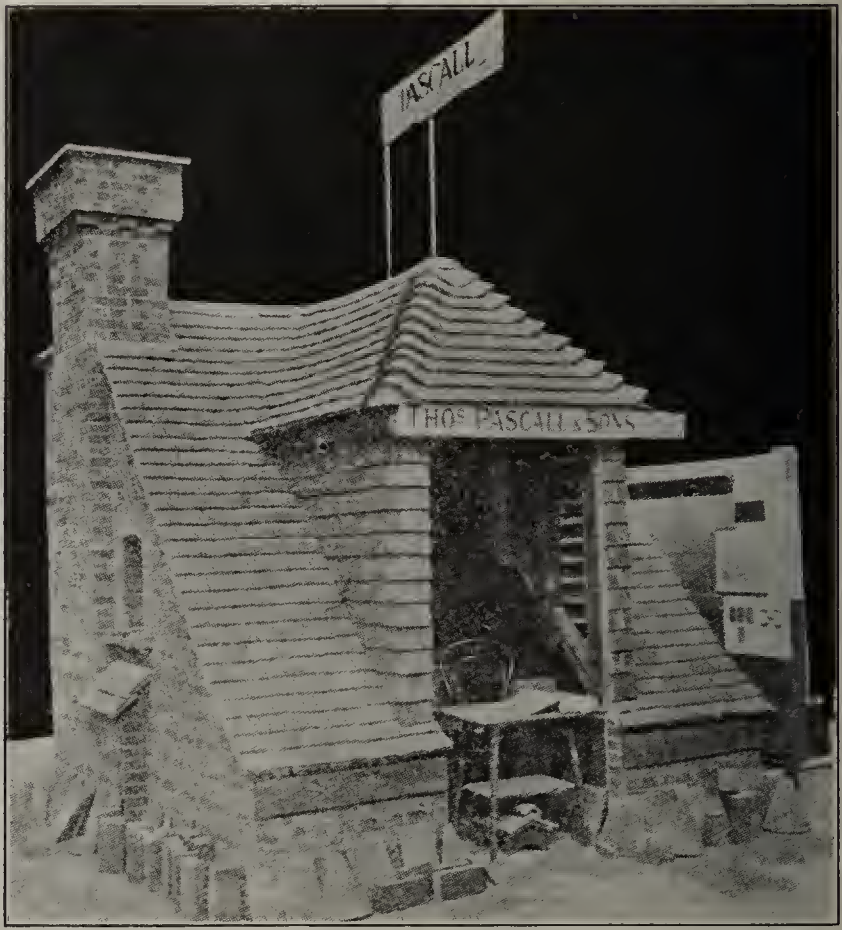


Open Garden Pavilion Composed of a Variety of Fancy Brick, Including Old English, Roman and Elizabethan.

### The Exhibits.

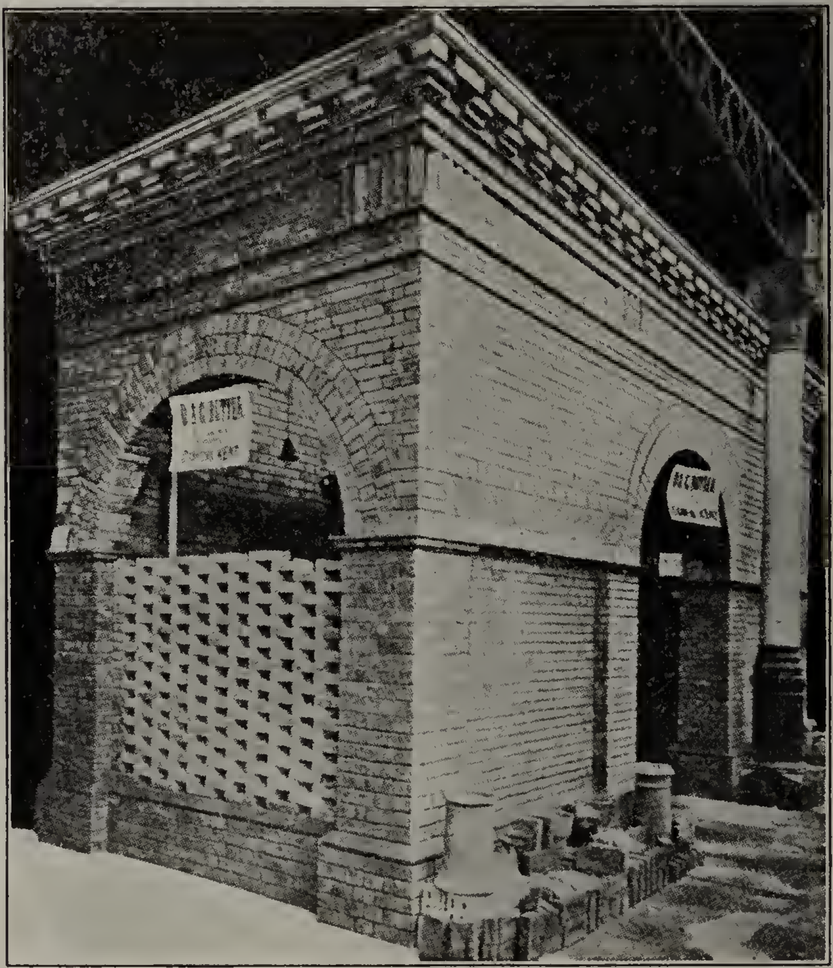
The exhibits were thoroughly representative of every branch of the clay industry, brick, tile of all kinds, finials, terra cotta, faience, chimney pots, stoneware pipes, baths and all varieties of sanitary goods, including many varieties of each product. Among some of the more pleasing exhibits, were the following:

The Ravenhead Sanitary Pipe & Brick Co., Ltd., of St. Helens, Lancs, showed their improved rustic face brick on an open pavilion, having a dwarf wall on one face, and a high wall with doorway and bay on the other. The walls showed cut brick arches and springers, sill brick and corner block, bevels, bullnose, stops, plinths, octagons, etc., and were well designed to give an idea of the many forms in which the firm's products can be used. The brick are clean and hard, with a wavy, rough surface and a beautful blending of color, giving the appearance of well preserved age on a new building. They are strong and durable, withstanding a pressure of 354 tons to the square foot. "Ravenhead" and "Upholland" clinker pavers, 6-in. by 2-in. by 2-in. formed the floor of the interior.



A Variety of Products Exhibited by Thos. Pascall & Sons.

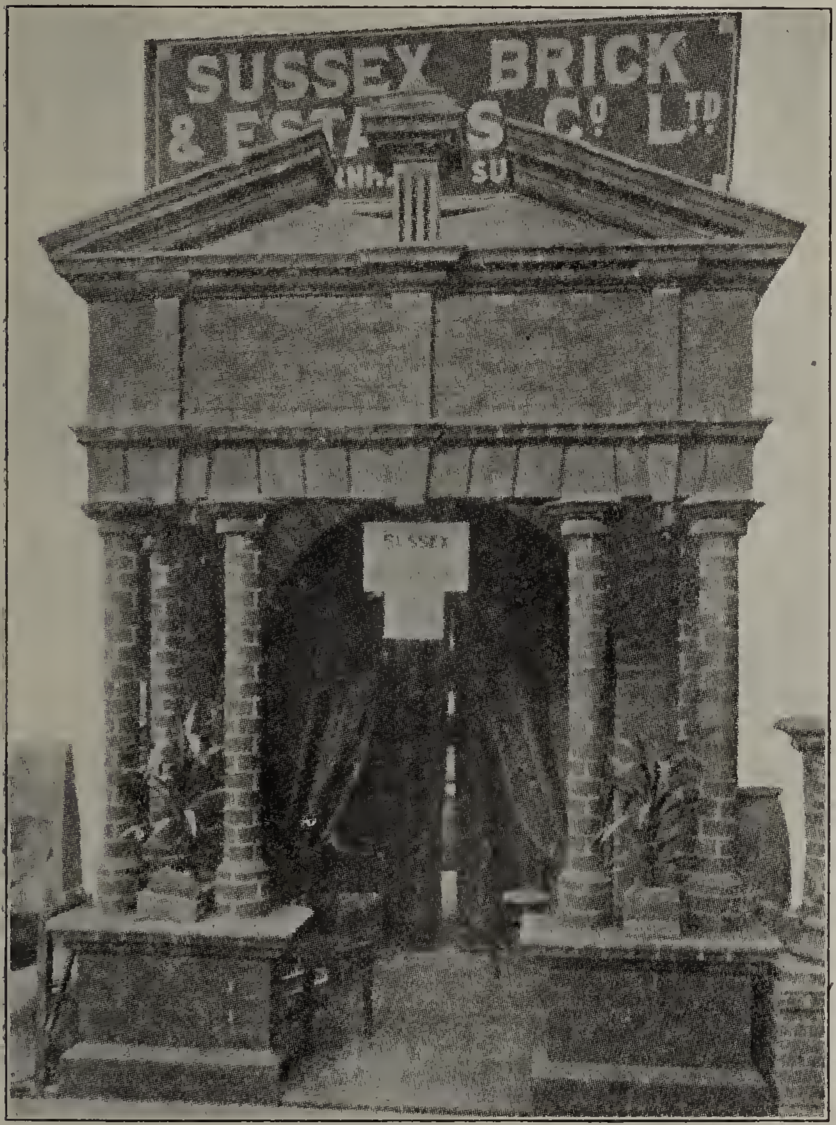
Messrs. S. & E. Collier, Ltd., of Reading, were represented by an open garden pavilion of elegant design, with eight slender brick columns and an archway at entrance, and a molded brick chimney in the Tudor style



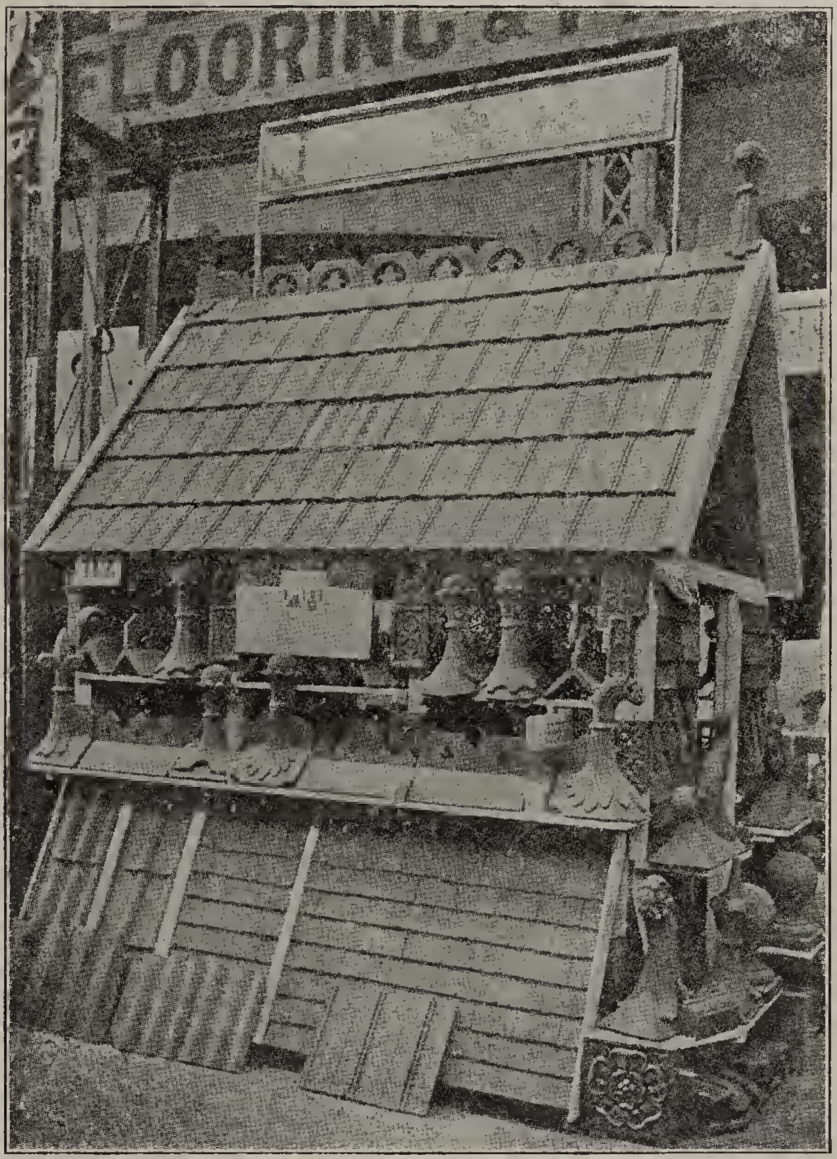
Built Entirely of Hand-Made Brick, Made by D. & C. Rutter, Crayford, Kent.

at side. Reproductions of the old English brick, in broken colors, fired to a very high temperature, were a leading feature of the stand, which also included orange-red and silver-grey facings; thin Roman brick for arches, etc.; molded and strings in a variety of patterns; copings, sills and pavings; red rubbers; chimney brick of Elizabethan period; glazed brick for hearths, etc.; clay fixing brick; breeze fixing brick and partition block; and white and grey sand-lime brick.

The Haunchwood Brick & Tile Co., Ltd., and the G. W. Lewis' Tileries, Ltd., of Nuneaton, jointly showed a bungalow designed by Mr. Ernest E. Shepherd, of the same town, built of Rosemary tile, which are made in thirty-two shades, ranging from red to blue, and all produced by firing alone. A special feature has been made of the mottled varieties. The Haunchwood Company laid stress on their blue pressed brick.



Portico with a Flat Arch Made of Southwater Face Brick, Relieved by Trimming of Red.



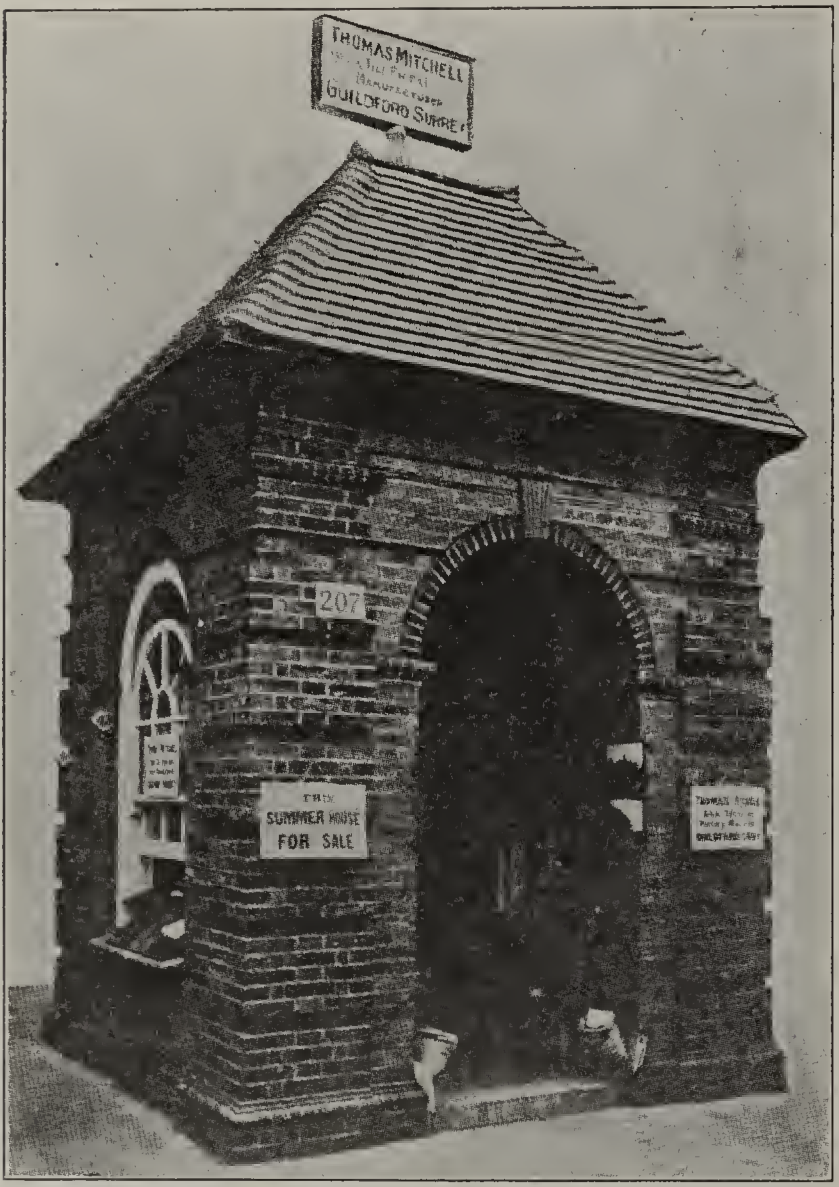
Variety of Tiles and Miscellaneous Wares Made by Colthurst, Symons & Co.

Messrs. D. & C. Rutter, Ltd., of Crayford, Kent, showed an open pavilion built throughout of hand-made stock. There were two frontages, each with a semi-curcular arch built up on piers of 2-in. brick, the rough surface of which was in remarkable conformity with the old Roman style. Both the sides were also of 2-in. stock, herringbone work being here adopted to demonstrate the capabilities of the brick for balcony and similar purposes. The panels in front were built of standard size dark and yellow facings, the panels behind being in the firm's second quality brick, designed for use in the development of large estates devoted to model dwellings, city gardens, etc. Every variety of shade, from primrose to dark blue (the fusing point), was shown, but the predominant tone was the beautiful old gold, to reach which is the ambition of the stock brickmaker. This tint is produced naturally from clay, without any admixture of chalk. Samples were also shown of red facings, partition block and hollow tile for floors, chimneys pots, ridge tile, flower pots, clay in its natural state and after being washed, etc.

Messrs. James Brown (London), Ltd., of Whitechapel, produced an excellent effect of old brickwork with a cottage having on one face mullioned windows with a doorway between and brick dormer over, and on the other face a flat arch on two pedestalled columns, flanked by molded quoins with a 3-light window, label molding and ornamental gable over. All the brick used were 2-in. mottled facings, of Essex clay from Brentwood, with a large variety of tints obtained by the burning. The roof consisted of hand-made, sand-faced tile, 11-in. by 7-in by $\frac{5}{8}$-in., with a half-round ridge, and bonnet-shaped hip tile and valleys. For the floor 7-in. by 7-in. quarries were used, the interior also containing an old-fashioned fireplace, with recessed shelves of molded brick above.

The Sussex Brick & Estates Co., Ltd., (with which is amalgamated the Southwater Brick & Tile Co., Ltd.), of Warnham, used the two faces of their site to good purpose. On one face was a portico, with a flat arch of specially made clay block on the outside and a semi-arch on the inside. The other face was entirely Gothic in its sills, moldings, arch and castellated wall. The building was mainly of Southwater pressed facing brick, with "S. B. E. C." broken colored reds by way of relief.

Messrs. Thos. Pascall & Sons, of South Norwood and Borough Green, exhibited a small picturesque building, carried out partly in the firm's broken-colored red, hand-made, sand-surfaced brick, and partly in their even color brick in three shades, dark, medium and light and in two thicknesses, i. e., four and five courses to the foot. The roof was covered with the firm's hand-made sand-faced, red and stained tile, and with its large dormer window, gave a most pleasing effect.



Solid Summer House, Made of Brick with Tile Roof.

Messrs. Colthurst, Symons & Co., Ltd., of Bridgwater, showed samples of double Roman tile, patent, interlocking Roman tile, patent interlocking Paragon tile, and registered interlocking Acme tile. Samples were also shown of angular, triple, corrugated and other roofing tile, including plain and sand-faced plain tile, ridge, finials, etc.

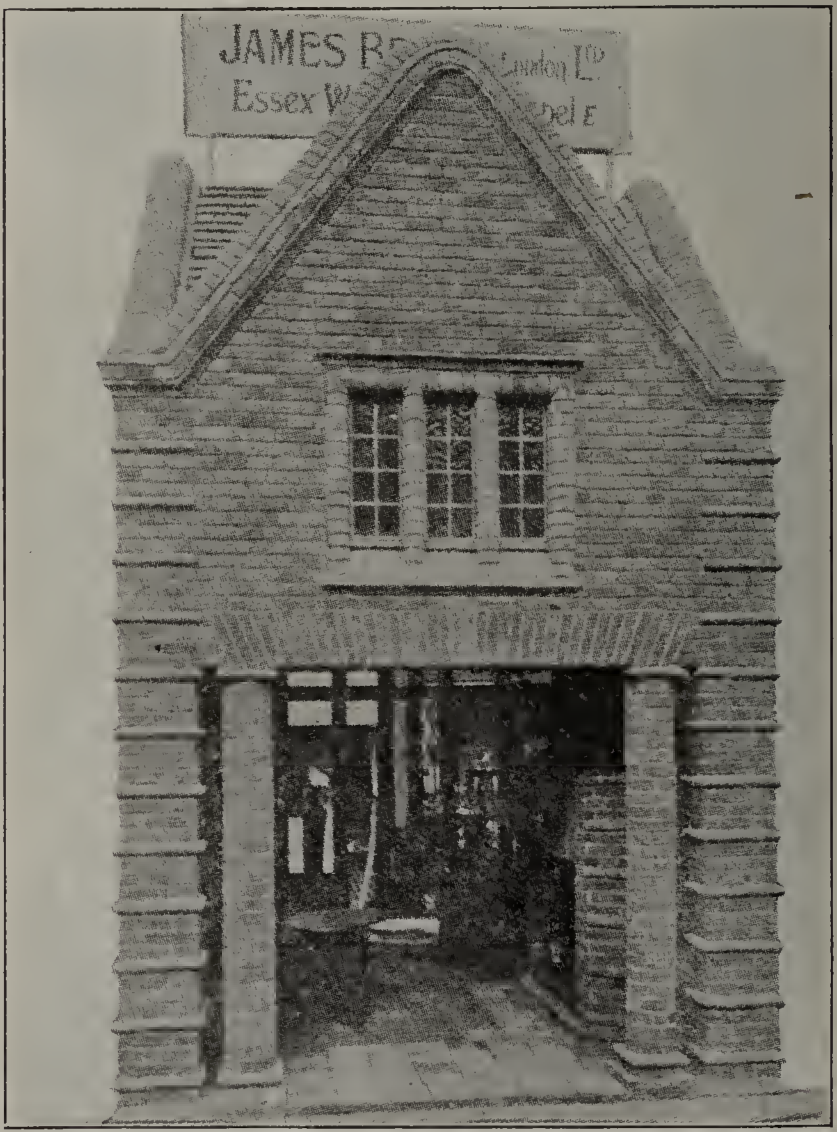
The Binfield Brick & Tile Co., Ltd., of Bracknell, showed garden walls, with statues in the niches, in the Gothic style, designed to display in a practical manner their many kinds of brick. The front wall was built of two-inch red facings, and the back wall of 2⅝-in. red facings, the brick though all from the same clay, ranging in hue from an orange red to a dark blue.

Mr. Thomas Mitchell, of Guildford, was represented by a solid summer house, with tiled eaves that showed no wood-work. The walls were built throughout of 2-in. best red and purple stock facing. The roof consisted of hand-made, sand-faced tile, with holes only; the tile on one side being dark, to match old tile, and red on the other three sides. The floor was laid with paving brick, and best red facings were used on the sills. Samples were shown inside of purple stock facing of ordinary size, wirecuts, sand-faced roofing tile with nibs as well as holes, hips, valleys, ridges, tile and half, and eaves to match either kind of roofing tile; also the old-fashioned granny-bonnet shape hips, 2-in., 3-in., 4-in. and 6-in. agricultural drain pipes, garden vases, flower pots, chimney pots, finials, etc.

The Hazelwood Brick Co., of Cranleigh, showed their red and purple hand-molded, sand-faced building brick, made in standard size, 9-in. by 4⅜-in. by 2-in.

Messrs. Doulton & Co. exhibited a portion of a 60-ft. column in "Carrara ware," the capital being a magnificent piece of molding in which the acanthus leaves curled with a naturalness seldom seen on such large pieces of work, the whole design being instinct with feeling to a far greater extent than is usual in terra-cotta work of this character. Close to this splendid piece of workmanship was a large archway in the same material, the modelling of which was fully up to the high standard of this firm's ordinary work. The terra cotta and primrose tile in the chief room in their display was a revelation of oriental richness and effectiveness seldom seen, and harmonized perfectly with the pale cream of the pottery used. Here again the modern tendency to avoid the glossy tiles of some years past was strongly marked and delightfully soft and warm effects were obtained by the use of "egg-shell" finishes, which are far more restful than the more glossy faiences at one time so popular.

Space forbids the description of the other exhibits, many of which were of equal interest and beauty. From these many ideas may be gleaned for use in preparing exhibits for our Clay Show next March.



Excellent Old Brick Effect, Gained by the Use of Mottled Brick in a Variety of Tints.

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The Pawhuska Vitrified Brick & Tile Co., of Pawhuska, Okla., expects to soon put in machinery for the making of tile.

# READY FOR BUSINESS

## International Brick and Clay Products Exposition Co. Opens Offices in Chicago and Commences Preliminary Work for the Big Coliseum Show in March, 1912

With the preliminary organization effected and sufficient money in the treasury to insure the success of the enterprise, the International Brick and Clay Products Exposition Co. has commenced work in a business-like manner through the opening of its office at 815 Chamber of Commerce Building, Chicago.

The well-known advertising expert, Mr. F. L. Hopley, of Bucyrus, Ohio, has been selected as manager of the show and will hereafter make his headquarters at the office of the company in the Chamber of Commerce Building. The selection of Mr. Hopley was a wise move on the part of the show company. No other man possesses so many of the qualifications required for a position of this kind. Mr. Hopley is recognized as a most clever and expert advertising man, one of the best in the country and combined with this, he has a thorough knowledge of the clay industry and a wide acquaintance with clay products manufacturers throughout the country.

Mr. Hopley's training and knowledge especially fit him for the important work involved in the promotion of the clay products show. In addition to the life-long study and experience in the advertising field, he has been a prominent publisher and printer and is now the head of a large printing establishment at Bucyrus, O. He has also held for some time the position of advertising manager for the American Clay Machinery Co. at Bucyrus. He has been a contributor to many publications devoted to advertising and is a recognized authority on the subject.

The work involved to secure the success of an exposition such as is planned for the clay industry, includes two separate fields of effort: first, the securing of a creditable display of the clay products of the country, and secondly, the arousing of enthusiasm and the securing of satisfactory attendance. That both of these results can be accomplished is now very certain. The idea of the clay products exposition, the purpose of which is to educate the people of the country to the extent, importance and superiority of the various lines manufactured, has already met with universal approval and it is assured that a large number of the manufacturers will make creditable exhibits of their ware. Regarding attendance, there can be no question whatever. Every national exposition which has been held in the Coliseum exploiting various lines of industry, has been successful in this respect and there is no reason to presume that an exhibition of such beauty, attractiveness and interest as can be produced by manufacturers of clay ware of all kinds, will not have the patronage of the people of Chicago and also that of many from the large surrounding territory. The holding of the various conventions in Chicago at the time of the show will insure the attendance of all the leading manufacturers of clay products in the country, from the Atlantic to the Pacific. Chicago will be the Mecca for clay workers of this country and Canada, next March. There will be gathered here the biggest army of clay products manufacturers that has ever been brought together at one time.

The Coliseum at 16th St. and Wabash Ave., Chicago, Where the Great Clay Show, the First of the Kind in This Country, Will Be Held, March 5-13, 1912.

The task of preparing such an exhibition and the exploiting of same through the newspapers and magazines of the country is, however, a tremendous task, which will tax Mr. Hopley's abilities to the utmost. In his work, he should have the most enthusiastic and hearty support of all the clay workers of the country for the intent and purpose of this exposition is solely to promote the interests of burned clay and to increase the demand for clay products throughout the country.

The International Clay Products Exposition Co. is not a one-man concern nor the creature of any clique or body of individuals. While a substantial amount of the stock has been subscribed for, yet there must be considerable more sold to provide the capital which is needed to secure the best possible results. The stock subscription books are now open and those interested in the clay products industry are cordially invited to take a share in the enterprise and to subscribe in any amounts from $50 to $5,000 and to participate in the direction and management of the enterprise.

The work of dividing the space, in the great Coliseum building, and apportioning same among the exhibitors is now in progress and already a number of applications have been made for exhibit space. No favoritism will be shown in this connection but it is advisable for those who desire to display the beauty and merit of their products at this great exposition to at least express their intentions at this time, even though they are not prepared to state how much space they desire to use. This would be a protection to them and will give the management an opportunity to arrange matters in the most satisfactory manner. Plans showing the Coliseum floor space will be sent to any manufacturer upon request.

Display of Faience in Colors by Rookwood Pottery Co. at St. Louis World's Fair. (Courtesy of The Clay-Worker.)

Every maker of building brick, paving brick, fire brick, art and table ware, faience, architectural terra cotta, mantel, floor and wall tile, sanitary pottery, sewer pipe, drain tile, fire proofing or other clay products should be enthusiastic over this opportunity to exploit to the public of the United States and Canada the superior merits of his ware. This exhibition gives clay manufacturers an opportunity which they never have had before and the makers of the different varieties of clay products should vie with each other in making their displays attractive and interesting. Mr. Hopley, the manager, will be much gratified to have clay products manufacturers express their views and give him their suggestions in regard to conducting the enterprise and ways in which its success can be assured.

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## FIREPROOF HOMES IN CHINA.

In describing the construction of the houses in the Tientsin, China, district, United States Consul-General Samuel S. Knabenshue, in a letter to the State Department at Washington, D. C., says:

"The vast majority of native houses in this part of China are built of clay and kao-liang. The latter is a plant much like American broom corn, growing to a height of 10 to 12 ft.

"A rude framework is erected for the side and end walls, composed of kao-liang stalks placed lattice fashion. This is then plastered thickly, outside and inside, with clay, which is smoothed down. The roof is built in exactly the same way. At the end of the rainy season, if there has been any damage to roof or walls, repairs are made, and the hot sun of the late summer bakes the clay to a considerable hardness. The Chinese house is invariably of one story. The houses of the better class of Chinese are built of brick with tile roofs. These tiles are set in clay and such a roof is immensely heavy. In the foreign settlements, of course, the buildings are on European or American models.

"Terms quoted by manufacturers located on the Atlantic Coast should be c. i. f. New York City (or other Atlantic seaport); or better still, c. i. f. Tientsin or Shanghai, by steamers from New York or Boston going through the Red Sea. This is a slow route, but the freights are much cheaper than by any of the others."

# OUR GROWING INDUSTRY

## Delayed Government Statistics Show Marked Progress and Development of the Clay Industry as Indicated by the Figures for the Year 1909

It is unfortunate that the work of the census bureau, last year, resulted in a considerable delay in the regular routine of the interior department, retarding the preparation of the statistics of the clay industry of the country. The printed reports of these statistics of production for 1909 have just been issued and while regrettably late in appearance, are of such value that their republication in these columns will be of interest to every member of the clay industry.

The statistics of the clay industry have been for many years prepared under the direction of Mr. Jefferson Middleton, state statistician of the U. S. Geological Survey, Department of the Interior. Mr. Middleton is a man well known throughout the clay industry and is a regular attendant at the national conventions. He is very familiar with all phases of the clay industry and allied interests and is a mine of information concerning trade matters. His report for 1909 demonstrates, as usual, the efficiency of his department and the elaborate and conscientious care which he gives to the preparation of his industrial reports.

In addition to the publication of the tabular statement of products for 1909, we herewith append Mr. Middleton's official remarks in connection with his report, as follows:

"With the exception of the section on clay production, this report deals with the products of the clay-working industries, and hence the tables are made up to show the products of clay manufactured and not the production of clay.

"The year 1909 in the clay-working industries was a remarkable one. The industries were in a very propperous condition and the value of the product was the largest ever made, the total being $166,321,213, an increase of $33,123,451, or 24.87 per cent, as compared with $133,197,762 in 1908, and an increase of $7,378,844, or 4.64 per cent., as compared with $158,942,369 in 1907. The decrease in 1908, $25,744,607, the result of the general financial depression, was the largest recorded.

"Of the two great divisions of the industry, (a) brick and tile and (b) pottery, the former appears to have been slightly more prosperous than the latter, the increase being 25.18 per cent. and 23.53 per cent., respectively. In the brick and tile industry every item except fancy brick, sewer pipe, and stove lining increased in value. Of these three, only one, sewer pipe, is an important factor in the industry, and the reason for the decrease in that item is the difference of basis on which the figures were compiled, the sales being taken as the basis for 1908 and the manufactured product for 1909. In the pottery industry every product showed an increase in value. The imports of pottery showed a gain of less than 1 per cent., although the product gained 23.53 per cent., and the proportion of the domestic product to consumption, 76.19 per cent., was the highest ever recorded. The exports of high-grade domestic pottery, though small, showed an increase, and the exports of all clay products increased 22.24 per cent.

"Not only was 1909 a year of prosperity in the clay-working industries but it was notable for the introduction of some important improvements. The most prominent of them is the brick-setting machinery introduced in the West. The idea of handling brick by machinery originated in New England and a plant was equipped several years ago with an elaborate sytem and was the first to use the "unit stack." By this system the unit for handling was 1,500 brick. This plant was destroyed by fire and was never rebuilt. In 1909 a system of handling from 600 to 1,000 bricks on a somewhat different plan was put into successful operation in the West and is now being used in Chicago. By this system it is possible for the brick to be carried from the molding machine to the drier, from the drier to the kiln, and from the kiln to the stock yard or the delivery car or cart without being touched by hand. Each of these machines is said to do the work of 40 men.

"More and more attention is being given to the preparation of the clay by weathering, mixing, grinding, screening and tempering before it is passed through the molding machine. It has been found that the quality of the product is much improved by better preparation of the clay.

"The enormous fire tax on the people of this country imposed by flimsy and inflammable buildings as shown in Bulletin 418 of this Survey, has aroused public sentiment on the subject of fireproof construction and, as a result, the demand for fireproof structures is increasing, and the growing use of brick and other burned-clay products has been the natural consequence. The use of hollow building tile or block for outer walls seems to be on the increase. Some very attractive architectural effects have been produced with this tile in combination with brick and with stuccoed outer surfaces. Improvements in front brick, both in texture and in color, have been attained within the last few years and have enhanced the value of this product as a building material.

"The number of operating firms continues to decline. A few years ago there were scattered throughout the country many small plants, but the present tendency is to concentrate the industry and to build plants with high-grade equipment and large capacity. The average value of the output per firm reporting in 1900 was $14,859; in 1909 it was $32,818. The capacity of brick machinery has been greatly increased in recent years. A few years ago a machine that would make 5,000 or 6,000 brick an hour was considered a wonder. Today machines are in operation that will turn out three times as many brick.

"The great tendency in the clay-working industries is to reduce the cost of production by the use of more efficient machinery and by the elimination, as far as possible, of hand labor.

"The figures in this report for 1909 were obtained by the Survey in cooperation with the Bureau of the Census. The collection of statistics by personal visits of agents and the use of manufactured output rather than of marketed product as the basis of compilation are different from the methods usually employed by the Survey. It was thought that the collection of data by personal visits instead of by mail would greatly expedite the work, but experience has not demonstrated the truth of this theory. In the clay-working industries, where large stocks are not generally carried over from season to season, the change of the basis of compilation is not believed to have made any appreciable difference in the figures presented except in the case of sewer pipe.

"Of the total value, $166,321,213 for 1909, the brick and tile, the materials which are used in the structural and engineering arts, was valued at $135,271,772, or 81.33 per cent., and the pottery was valued at $31,049,441, or 18.67 per cent. These relative percentages have been maintained a number of years. In 1907 the value of the brick and tile was $128,798,895, or 81.03 per cent., and of the pottery $30,143,474, or 18.97 per cent. Every State and Territory, except Alaska, is a producer of burned clay, and Porto Rico appeared in 1909 as a producer for the first time.

"Of the states and territories represented by the 48 totals, 5 showed losses, 42 showed gains and 1 (Porto Rico), appearing in 1909 for the first time as a producer shows only a small output. These losses, which amounted to only $278,447, were insignificant, the largest, $101.663. being in Louisiana, and the smallest, $5,704, in Vermont. In 1908 only 8 states showed gains and 39 showed losses. The gains in 1909 ranged from $2,948 in Arizona, to $6,343,731 in Pennsylvania. The smallest proportionate increase was in Arizona, 2.81 per cent., and the largest in Oklahoma, 83.38 per cent.

"The greatest of all clay products in point of value and geographic distribution, common brick, showed a large gain, $12,485,501, or 27.89 per cent., in 1909, over 1908; vitrified paving brick showed the smallest proportionate gain, 5.74 per cent., in 1909, although in 1908 it increased 10.39 per cent., and in 1907, 22.86 per cent.

"Drain tile gained $1,137,682 or 13.13 per cent.; in 1908, its increase was $1,797,314, or 26.18 per cent. Its principal field of usefulness is the Middle West, though its use is increasing in the South.

Sewer pipe is the only product of importance to show a loss in 1909, although this loss was probably not so great as it appears to be. This industry is the only one of the clay-working industries in which stocks of any size are carried on hand. As the schedules of the Census Office called for manufactured product and the Survey's figures for 1908 were for sales, the decrease may be accounted for, as has already been suggested, by this change of basis of valuation.

"Fire brick, next to common brick, was the brick and tile product of greatest value and showed the largest proportional gain in 1909, as it had shown the largest proportional loss in 1908. This large gain was partly due to the inclusion of silica brick in the 1909 product. Silica brick, however, was valued at probably not more than 10 per cent. of the whole, so that there was still a large increase in fire brick in 1909.

"The front brick reported in 1909 numbered 816,164,000, valued at $9,712,219, or $11.90 per thousand, an increase of 231,682,000 brick, or 39.64 per cent. in quantity and of $2,776,619, or 40.03 per cent. in value. As for several preceding years, Pennsylvania, Ohio and New Jersey were the leading states in 1909 in the order named; they reported 49.77 per cent. of the output and 44.97 per cent. of the value of front brick for the entire country for 1909. The average price per thousand ranged from $7.84 in Michigan to $30 in Arizona. In the leading three states the prices were, Pennsylvania, $10.85; Ohio, $10.67; and New Jersey, $10.66. Next to common brick, front brick is the most widely distributed of the clay-working industries; only 4 states and territories—namely, Florida, New Hampshire, Porto Rico, and Vermont—reported no production in 1909. Front brick constituted 7.18 per cent. of the value of all brick and tile products in 1909 and 6.42 per cent. in 1908.

"The use of drain tile continues to grow. It has steadily increased in value for several years, and was reported to the value of $9,799,158 for 1909, as compared with $8,661,476 in 1908 (when the industry flourished in spite of the general depression), a gain of $1,137,682, or 13.13 per cent. Iowa, Ohio, Indiana and Illinois are the leading states, in the order named. These four great agricultural states, together with Michigan, reported drain tile, valued at $8,859,438, or 90.41 per cent. of the total for the country; in 1908 these states reported drain tile valued at $7,781,804, or 89.84 per cent. of the total. Of these leading states, Iowa showed a gain in 1909 over 1908 of $321,405; Ohio, of $307,066; Indiana, of $221,072; Illinois, of $191,715; and Michigan, of $36,376. Drain tile constituted 7.25 per cent. of the value of all brick and tile products in 1909 and 8.01 per cent. in 1908.

"Sewer pipe was the only important clay product having a decrease in value in 1909. Correspondence with the leading producers showed that this apparent loss was due to the fact that the figures called for on the census schedules were manufactured output instead of marketed output, which has been the basis of the figures collected by the Survey.

"The demand for architectural terra cotta is usually limited to the largest and best buildings. Furthermore, it is a product that will justify transportation. Hence the production is confined to a few states where the skilled labor required in its manufacture is available. This product in 1909 was reported from 15 states.

"Fireproofing and hollow building or block, owing to their similarity, have not been separated in the collection of data. The use of these materials both for partitions and for outer walls has increased considerably, and they showed a gain in value in 1909 of $1,298,671, or 40.99 per cent. New Jersey continued to be the leading State, reporting 29.09 per cent. of the entire output; Ohio was second, reporting 18.01 per cent. of the output.

"The fire-brick industry in 1909 was second only to common brick in value of product. Fire brick was reported from 34 states in 1909 and from 37 in 1908. Iowa and Wisconsin entered the list of producers, and Idaho and Nevada, Minnesota, Nebraska, North Carolina and Oklahoma dropped out. The figures given in this report for quantity represent the product reduced to the equivalent of a 9-inch fire brick. The quantity so reported for 1909 was 838,167,000, a gain of 285,801,000 brick, or 51.74 per cent.. The output in 1909 was 55,150,000 brick, or 7.04 per cent. greater than that of 1907. In 1908 fire brick fell off 29.46 per cent. The value showed even a larger increase in 1909 over 1908—$5,924,479, or 55.39 per cent.—than the quantity. The average value per thousand increased from $19.36 in 1908 to $19.83 in 1909. Pennsylvania continued to be the largest producer, reporting 417,836,000 fire brick, or nearly 50 (49.85) per cent. of the whole output, and $8,107,807, or 48.78 per cent. of the value. Ohio was second in both quantity and value, and Missouri was third. Kentucky was fourth in quantity and fifth in value, and New Jersey fifth in quantity and fourth in value.

"Pennsylvania was again the leading state in the value of brick and tile products, regaining that position which was wrested from her by Ohio in 1908. The value of Pennsylvania's brick and tile output increased $5,837,465, or 43.03 per cent. in 1909, exceeding that of 1907 by $422,201. Ohio, which was second in value for many years but was first in 1908, fell back to second place in 1909, reporting 12.52 per cent. of the total and a state increase of $1,014,182, or 6.37 per cent. Illinois continued in third place, reporting 9.98 per cent. of the value for the entire country and a state increase of $2,753,738, or 25.61 per cent. New York was fourth in both 1908 and 1909, and New Jersey fifth in both years."

# CLAY PRODUCTION IN THE UNITED STATES IN 1909

## Statistical Report of the Clay Working Industries, Issued by the U. S. Geological Survey, Giving Value and Rank by State

| Rank. | State. | Common brick. | | Average price per thousand. | Vitrified brick or block. | | Average price per thousand. | Front brick. | | Average price per thousand. | Fancy or ornamental brick (value). | Drain-tile (value). | Sewer pipe (value). | Architectural terra cotta (value). | Fireproofing (value). | Tile, not drain (value). | Stove lining (value) | Fire brick. | | Average price per thousand. | Miscellaneous (value).[a] | Total value. | Per cent of total value. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Quantity. | Value. | | Quantity. | Value. | | Quantity. | Value. | | | | | | | | | Quantity. | Value. | | | | |
| | | *Thousands.* | | | *Thousands.* | | | *Thousands.* | | | | | | | | | | *Thousands.* | | | | | |
| 19 | Alabama | 146,180 | $799,693 | $5.47 | 20,444 | $262,376 | $12.83 | (a) | (a) | $16.19 | (a) | (a) | (a) | ...... | (a) | ...... | ...... | 14,119 | $196,887 | $13.94 | $993 | $1,663,788 | 1.23 |
| 44 | Arizona | 10,702 | 97,555 | 9.12 | ...... | ...... | ...... | (a) | (a) | 30.00 | ...... | (a) | ...... | ...... | ...... | (b) | ...... | ...... | ...... | ...... | 155 | 107,940 | .08 |
| 34 | Arkansas | 69,726 | 452,505 | 6.49 | (a) | (a) | 9.41 | (a) | (a) | 12.84 | ...... | $5,300 | ...... | ...... | ...... | ...... | ...... | (b) | (b) | 13.10 | ...... | 600,550 | .44 |
| 9 | California | 276,396 | 1,749,209 | 6.33 | 7,180 | 135,203 | 18.83 | 10,359 | $309,770 | 29.90 | (a) | 29,620 | $904,473 | $345,402 | $128,447 | $130,941 | (b) | 11,277 | 297,577 | 26.39 | 207,494 | 4,312,590 | 3.19 |
| 15 | Colorado | 121,908 | 801,833 | 6.58 | (a) | (a) | 14.12 | 38,782 | 473,039 | 12.20 | ...... | 13,626 | (a) | ...... | (a) | (b) | ...... | 12,440 | 265,089 | 21.31 | 89,846 | 1,994,798 | 1.47 |
| 22 | Connecticut and Rhode Island | 242,000 | 1,408,033 | 5.82 | (a) | (a) | 13.00 | (a) | (a) | 14.00 | (a) | ...... | ...... | ...... | ...... | ...... | (b) | (b) | (b) | 29.26 | ...... | 1,515,595 | 1.12 |
| 41 | Delaware | 23.301 | 198,888 | 8.54 | ...... | ...... | ...... | (a) | (a) | 17.58 | ...... | (a) | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 231,505 | .17 |
| 42 | District of Columbia | 27,937 | 180,319 | 6.45 | ...... | ...... | ...... | (a) | (a) | 12.00 | ...... | (a) | (a) | ...... | (a) | ...... | ...... | ...... | ...... | ...... | ...... | 214,489 | .16 |
| 39 | Florida | 46,272 | 289,016 | 6.25 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | (a) | ...... | ...... | (a) | ...... | ...... | (b) | (b) | 18.00 | 487 | 298,620 | .22 |
| 14 | Georgia | 275,809 | 1,469,839 | 5.33 | (a) | (a) | 12.00 | 7,188 | 61,131 | 8.50 | (a) | 4,820 | 351,492 | (a) | (a) | (b) | ...... | 3,168 | 62,452 | 19.71 | 34,432 | 2,265,121 | 1.67 |
| 38 | Idaho and Nevada | 45,703 | 368,686 | 8.07 | (a) | (a) | 25.00 | 2,073 | 45,009 | 21.71 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 416,695 | .31 |
| 3 | Illinois | 1,257,025 | 5,927,054 | 4.72 | 140,105 | 1,562,373 | 11.15 | 32,416 | 385,170 | 11.88 | $12,223 | 1,613,593 | 394,461 | 1,898,865 | 439,796 | 335,020 | ...... | 31,210 | 682,793 | 21.88 | 53,670 | 13,505,898 | 9.98 |
| 7 | Indiana | 251,227 | 1,579,185 | 6.29 | 53,597 | 559,201 | 10.44 | 50,135 | 511,171 | 10.20 | (a) | 2,018,401 | 332,449 | (a) | 410,500 | (b) | ...... | 14,113 | 280,921 | 19.91 | 412,921 | 6,744,295 | 4.99 |
| 8 | Iowa | 153,065 | 1,072,340 | 7.01 | 18,586 | 198,780 | 10.70 | 12,015 | 138,218 | 11.50 | (a) | 2,830,910 | 282,637 | ...... | 304,398 | ...... | ...... | (b) | (b) | 15.00 | 18,748 | 4,846,706 | 3.58 |
| 12 | Kansas | 254,890 | 1,160,877 | 4.55 | 103,264 | 332,419 | 9.03 | 26,170 | 235,875 | 9.01 | (a) | 37,862 | (a) | (a) | (a) | (b) | ...... | (b) | (b) | 15.00 | 4,424 | 2,709,822 | 2.00 |
| 13 | Kentucky | 119,183 | 741,115 | 6.22 | (a) | (a) | 12.69 | 11,626 | 104,022 | 8.95 | (a) | 53,213 | (a) | (a) | (a) | 296,179 | (b) | 51,645 | 899,363 | 17.41 | 17,966 | 2,332,475 | 1.72 |
| 36 | Louisiana | 78,190 | 460,988 | 5.90 | ...... | ...... | ...... | (a) | (a) | 10.15 | ...... | (a) | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 33,655 | 528,261 | .39 |
| 33 | Maine | 54,981 | 375,168 | 6.82 | (a) | (a) | 14.42 | (a) | (a) | 11.20 | ...... | (a) | (a) | ...... | ...... | ...... | ...... | (b) | (b) | 16.90 | 907 | 635,667 | .47 |
| 23 | Maryland | 148,673 | 914,420 | 6.15 | (a) | (a) | 13.10 | 1,350 | 20,582 | 15.25 | (a) | 5,695 | ...... | (a) | ...... | ...... | $25,925 | 16,037 | 278,777 | 17.38 | 11,430 | 1,400,380 | 1.04 |
| 20 | Massachusetts | 183,584 | 1,177,281 | 6.41 | ...... | ...... | ...... | 1,790 | 45,050 | 25.17 | (a) | ...... | ...... | (a) | (a) | 69,837 | 159,530 | 2,101 | 75,160 | 35.77 | ...... | 1,631,858 | 1.21 |
| 16 | Michigan | 219,820 | 1,250,787 | 5.69 | 10,473 | 129,283 | 12.34 | 2,379 | 18,654 | 7.84 | ...... | 364,006 | (a) | ...... | (a) | (b) | ...... | ...... | ...... | ...... | 66,128 | 1,947,059 | 1.44 |
| 18 | Minnesota | 161,585 | 969,729 | 6.00 | (a) | (a) | 9.00 | 14,350 | 171,600 | 11.96 | ...... | 109,371 | (a) | ...... | 53,398 | (b) | ...... | ...... | ...... | ...... | ...... | 1,755,438 | 1.30 |
| 31 | Mississippi | 112,402 | 691,000 | 6.15 | ...... | ...... | ...... | 1,871 | 22,554 | 12.05 | ...... | 62,605 | ...... | ...... | ...... | ...... | ...... | (b) | (b) | 15.22 | 2,500 | 779,009 | .58 |
| 6 | Missouri | 276,403 | 1,961,805 | 7.10 | 59,863 | 781,706 | 13.06 | 36,194 | 589,782 | 16.30 | 29,683 | 127,166 | 1,162,730 | (a) | 110,464 | (b) | (b) | 78,678 | 1,598,302 | 20.31 | 212,799 | 7,367,061 | 5.45 |
| 37 | Montana | 29,818 | 258,510 | 8.67 | (a) | (a) | 20.00 | (a) | (a) | 17.55 | ...... | ...... | (a) | ...... | (a) | ...... | ...... | 3,147 | 130,079 | 41.33 | ...... | 451,389 | .33 |
| 26 | Nebraska | 139,151 | 946,532 | 6.80 | (a) | (a) | 10.50 | (a) | (a) | 18.17 | ...... | (a) | ...... | ...... | (a) | ...... | ...... | ...... | ...... | ...... | 36,982 | 1,146,449 | .85 |
| 35 | New Hampshire | 75,049 | 532,965 | 7.10 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | (b) | (b) | 26.74 | ...... | 552,215 | .41 |
| 5 | New Jersey | 460,966 | 2,609,605 | 5.66 | (a) | (a) | 11.41 | 80,855 | 862,245 | 10.66 | 8.578 | 37,211 | (a) | 1,637,705 | 1,299,540 | 992,606 | ...... | 35,454 | 907,276 | 25.59 | 462,731 | 9,380,958 | 6.93 |
| 43 | New Mexico | 11,244 | 94,395 | 8.40 | (a) | (a) | 13.01 | 3,491 | 46,973 | 13.46 | (a) | ...... | ...... | (a) | ...... | ...... | ...... | 954 | 23,779 | 24.93 | ...... | 182,755 | .13 |
| 4 | New York | 1,542,552 | 7,760,746 | 5.03 | 16,063 | 238,697 | 14.86 | 9,815 | 148,126 | 15.09 | ...... | 125,640 | 126,908 | 998,535 | 199,999 | 62,795 | 79,653 | 12,674 | 491,872 | 38.81 | 37,256 | 10,270,227 | 7.59 |
| 24 | North Carolina | 188,313 | 1,140,727 | 6.06 | ...... | ...... | ...... | 725 | 9,250 | 12.76 | ...... | 8,890 | (a) | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 5,035 | 1,283,902 | .95 |
| 40 | North Dakota | 20,944 | 160,540 | 7.65 | ...... | ...... | ...... | 5,805 | 103,762 | 17.87 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | (b) | (b) | 21.55 | ...... | 269,324 | .20 |
| 2 | Ohio | 420,999 | 2,429,879 | 5.77 | 324,530 | 3,113,128 | 9.59 | 130,684 | 1,393,787 | 10.67 | 24,367 | 2,032,528 | 3,009,798 | (a) | 804,637 | 1,912,343 | 23,803 | 103,148 | 1,730,401 | 16.78 | 437,814 | 16,929,885 | 12.52 |
| 28 | Oklahoma | 156,889 | 952,453 | 6.07 | 7,186 | 58,388 | 8.13 | 1.796 | 21,473 | 11.96 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 1,032,314 | .76 |
| 30 | Oregon | 64,569 | 529,110 | 8.19 | ...... | ...... | ...... | 6,436 | 119,085 | 18.50 | ...... | 43,198 | (a) | ...... | (a) | ...... | ...... | 259 | 8,000 | 30.89 | 910 | 827,963 | .61 |
| 1 | Pennsylvania | 872,658 | 5,607,490 | 6.43 | 116,735 | 1,329,317 | 11.39 | 194,695 | 2,111,556 | 10.85 | 27,963 | 14,668 | 445,594 | 428,522 | 324,860 | 441,243 | 97,270 | 417,836 | 8,107,807 | 19.40 | 464,934 | 19,403,944 | 14.34 |
| 48 | Porto Rico | 4,199 | 34,326 | 8.17 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | (a) | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 34,506 | .03 |
| 32 | South Carolina | 121,063 | 716,379 | 5.91 | ...... | ...... | ...... | (a) | (a) | 15.00 | ...... | | ...... | ...... | ...... | ...... | ...... | 1,634 | 24,083 | 14.74 | ...... | 751,037 | .56 |
| 46 | South Dakota | 5,753 | 57,460 | 9.99 | ...... | ...... | ...... | (a) | (a) | 11.20 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 68,660 | .05 |
| 21 | Tennessee | 159,328 | 1,022,282 | 6.42 | (a) | (a) | 13.08 | 11,397 | 125,661 | 11.03 | (a) | 67,472 | (a) | ...... | (a) | ...... | ...... | (b) | (b) | 12.16 | 2,000 | 1,575,262 | 1.16 |
| 11 | Texas | 293,560 | 1,890,601 | 6.44 | (a) | (a) | 10.32 | 26,726 | 407,023 | 15.23 | (a) | 28,414 | (a) | ...... | 20,170 | ...... | ...... | 7,448 | 123,393 | 16.57 | 64,211 | 3,026,035 | 2.24 |
| 29 | Utah | 56,786 | 381,186 | 6.71 | ...... | ...... | ...... | 31,755 | 317,189 | 9.99 | ...... | (a) | (a) | ...... | ...... | ...... | (b) | (b) | (b) | 27.28 | 7,593 | 874,150 | .65 |
| 45 | Vermont | 10,395 | 63,724 | 6.13 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | (a) | ...... | ...... | ...... | ...... | (b) | ...... | ...... | ...... | ...... | 83,360 | .06 |
| 17 | Virginia | 249,794 | 1,540,648 | 6.17 | ...... | ...... | ...... | 24,717 | 333,057 | 13.17 | (a) | 6,298 | (a) | ...... | ...... | ...... | ...... | (b) | (b) | 13.43 | ...... | 1,919,771 | 1.42 |
| 10 | Washington | 143,198 | 1,081,579 | 7.55 | (a) | (a) | 18.72 | 7,802 | 155,600 | 19.94 | ...... | 18,495 | 737,847 | 206,324 | 71,067 | ...... | ...... | 2,853 | 103,531 | 36.29 | 4,000 | 3,044,275 | 2.25 |
| 25 | West Virginia | 53,983 | 327,141 | 6.06 | 45,661 | 565,218 | 12.38 | (a) | (a) | 14.74 | ...... | (a) | (a) | ...... | (a) | 82,461 | ...... | 5,003 | 80,773 | 16.14 | 800 | 1,159,627 | .86 |
| 27 | Wisconsin | 147,741 | 956,232 | 6.47 | ...... | ...... | ...... | 7,788 | 74,120 | 9.52 | (a) | 95,899 | ...... | ...... | (a) | ...... | ...... | (b) | (b) | 14.85 | 2,000 | 1,130,380 | .84 |
| 47 | Wyoming | 5,856 | 59,280 | 10.12 | ...... | ...... | ...... | 525 | 8,475 | 16.14 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 67,755 | .05 |
| ...... | Other States[b] | ...... | ...... | ...... | 99,967 | 1,403,497 | 14.04 | 22,454 | 343,210 | 15.29 | 71,259 | 44,257 | 2,573,935 | 736,272 | 299,432 | 968,538 | 37,402 | 12,969 | 252,380 | 19.46 | ...... | (d) | ...... |
| | Total | 9,791,870 | 57,251,115 | 5.85 | 1,023,654 | 11,269,586 | 11.01 | 816,164 | 9,712,219 | 11.90 | c1,167,975 | 9,799,158 | 10,322,324 | 6,251,625 | 4,466,708 | 5,291,963 | 423,583 | 838,167 | 16,620,695 | 19.83 | 2,694,821 | 135,271,772 | 100.00 |
| | Per cent of brick and tile products | ...... | 42.32 | ...... | ...... | 8.33 | ...... | ...... | 7.18 | ...... | .87 | 7.25 | 7.63 | 4.62 | 3.30 | 3.91 | .31 | ...... | 12.29 | ...... | 1.99 | 100.00 | ...... |
| | Per cent of total of clay products | ...... | 34.42 | ...... | ...... | 6.78 | ...... | ...... | 5.84 | ...... | .70 | 5.89 | 6.21 | 3.76 | 2.69 | 3.18 | .25 | ...... | 9.99 | ...... | 1.62 | 81.33 | ...... |

[a] Included in "Other States."

[b] Includes all products made by less than three producers in one State.

[a] Included in "Other States."

[b] Includes all products made by less than three producers in one State.

[b] Included in "Other States."

[c] Includes all products made by less than three producers in one State.

[d] The total of "Other States" is distributed among the States to which it belongs in order that they may be fully represented in the totals.

[c] Includes enameled brick, valued at $993,902, made in the following States: California, Illinois, Maryland, Missouri, New Jersey, and Pennsylvania.

[a] Including adobes, aquarium ornaments, burnt clay ballast, charcoal furnaces, chimney pipe, pots and tops, conduits, crucibles, curbing, dental furnaces, fence posts, flue lining, gas logs, glasshouse supplies, muffles, radial chimney brick and blocks, retorts, saggers, scorifiers, sewer brick, stone pumps, vases and ornaments, and wall coping.

## NOTICE TO THE PUBLIC.

The Williams Patent Crusher and Pulverizer Co. are feeling much elated over the final decision rendered by the U. S. Circuit Court of Appeals at Philadelphia in the suit which they brought against the Pennsylvania Crusher Co., sometime ago for infringement of their patent No. 843,729 for improvements in dumping cages for crushers and pulverizers. The statement of the Williams company is as follows:

> This decision of the Court of Appeals handed down in the March term, 1911, concludes "the record will be remanded with instructions to the Circuit Court to enter a decree reversing the former one adjudging claims 1 and 2 of the patent in suit to be valid and infringed and awarding to the complainant an injuction with the usual accounting and costs of suit."
>
> Under the law, a user of an infringing machine is liable for his acts of infringements. The maker and seller of the infringing machine in question has been found to have infringed our patent No. 843,729 and the Court of Appeals, in addition, has found the infringed claims of said patent to be valid.
>
> It is our intention to protect our rights as secured to us by the above patent and numerous other patents which have been granted on improvements we have made in crushing and pulverizing machinery, and the public is warned against buying crushing and pulverizing machines which infrnge any of the following patents:
>
> (List of 87 patents and dates when secured.)
>
> The claims of this patent are found to be valid and infringed in suit brought against the St. Louis Pulverizing Co., reported 104 Fed. 795
>
> Yours very truly,
> Williams Patent Crusher and Pulverizer Co.,

## RECENT TRADE PUBLICATIONS.

"Clay Today" is one of the newest additions to our trade literature and is the bi-monthly magazine published by the H. Brewer & Co., of Tecumseh, Mich. The cover is attractive and is an incentive to one to go further and see if the contents is equally inviting. We find it like all Brewer products, "good." These little journals are truly educational and supplement the efforts of the trade journal in keeping up the interest in the clay industry.

The Otto Gas Engine Works, Philadelphia, Pa., is issuing bulletins showing the comparative cost of producing power by various methods and to those sending size and type of engine required, amount of fuel to be used and work to be done by the engine, the company will gladly send specific information to suit the requirements of the inquirer.

The International Sand-Lime Brick Machinery Co., 90 West street, New York, have recently gotten out an interesting 32-page booklet giving a description of the process of making sand-lime brick; analysis of material and several illustrated articles describing a number of plants equipped by this company, some attractive mantels and fireplaces made of silica brick are also shown, including two in the Hotel Rudolph, Atlantic City, N. J. The company will furnish these catalogs to those who may desire them.

"If it's not right we will make it right," is the slogan of the Conneaut (Ohio) Shovel Co. In their new catalog they describe the process of making and testing their handmade shovels. They make a large variety of shovels especially adapted for the various usages to which they may be subjected. The company is making specialties of a pointed shovel for shale and a square pointed delivery wagon scoop which are proving great winners.

"Building Progress" for May, published by the National Fire Proofing Co., is unusually well gotten up, the cover being in delft blue, showing a group of early day "Dutchmen" of New York playing nine pins on the spot now occupied by the latest addition to New York's skyscrapers, the Whitehall Bldg. A full description of this, "the latest word" in commercial architecture, is given in the pages of the magazine, as well as an interesting article on the "Artistic Home of Hollow Tile."

It is a rare occurrence when we have the pleasure to acknowledge the receipt of such a handsome piece of trade literature as the bound Vol. 1 of the Clay Crafter, published by the C. W. Raymond Co., Dayton, Ohio, containing the first six issues of this popular magazine which is always read by us with pleasure and no little profit. Among the "good things" found therein is an article on "Face Brick Burning," by Geo. C. F. Vater; "The Burning of Clay Wares," by Chas. F. Binns, and "Laying of Drain Tile," by A. F. Greaves-Walker, which will appear later in "Brick and Clay Record."

We are pleased to note the progressive spirit of the Tate, Jones & Co., Pittsburg, Pa. It keeps the trade informed on many subjects of direct and indirect interest to the clay industry by a series of booklets. We have recently received two interesting copies, one giving valuable information in regard to heat treating of steel, the other dealing with furnaces for hardening, tempering and annealing. Those desiring copies of these booklets can secure them by addressing the Tate, Jones Co., Empire Bldg., Pittsburg, Pa.

Mr. Geo. Ogan, of Danville, Ill., informs us that he has secured the contract to erect one of his large continuous kilns for the Fort Scott (Kan.) Brick & Tile Co.

The work is now under construction with fifteen bricklayers at work. He says this company expects to increase its capacity to 100,000 pavers per day. He states that the shale there makes one of the best pavers in the United States. He expects to have the kiln ready for use in seventy-five days.

## EXTENDING SALES FIELD

The firm of J. C. Steele & Sons, Statesville, N. C., informs us that business has been very excellent with them this year and that they have made many sales during the past few months on the Pacific coast and in Mexico. Their plant at Statesville is being operated on full time and is busy with rumerous orders.

## ANOTHER SIDE OF THE QUESTION.

Editor of "Brick and Clay Record":—I have read the articles entitled, "Prices Should be Raised," in your March number; "Boost the Price," in your April number, and "United Efforts Needed," in the May number, all of which are sensible and true.

What I would like to know is, whether the sewer pipe business is being conducted for profit or pleasure? Whichever way this question is answered, I would also ask, how do other stockholders feel about it? Are they satisfied with their non-dividend paying investments and with patiently waiting and hoping for better times?

The better times will never come on present discounts. Take the "Annual Statement of the American Sewer Pipe Co.," published in your March number, for instance: Net profit, $51,925.63 on $7,000,000.00 of stock, or less than two-thirds of 1 per cent net profit.

Not speaking for any particular company, I would suggest regulating officers' salaries by the earnings and not by the volume of business.

It's dividends we want.

A Terra Cotta Stockholder.

## WILL MAKE FACE BRICK.

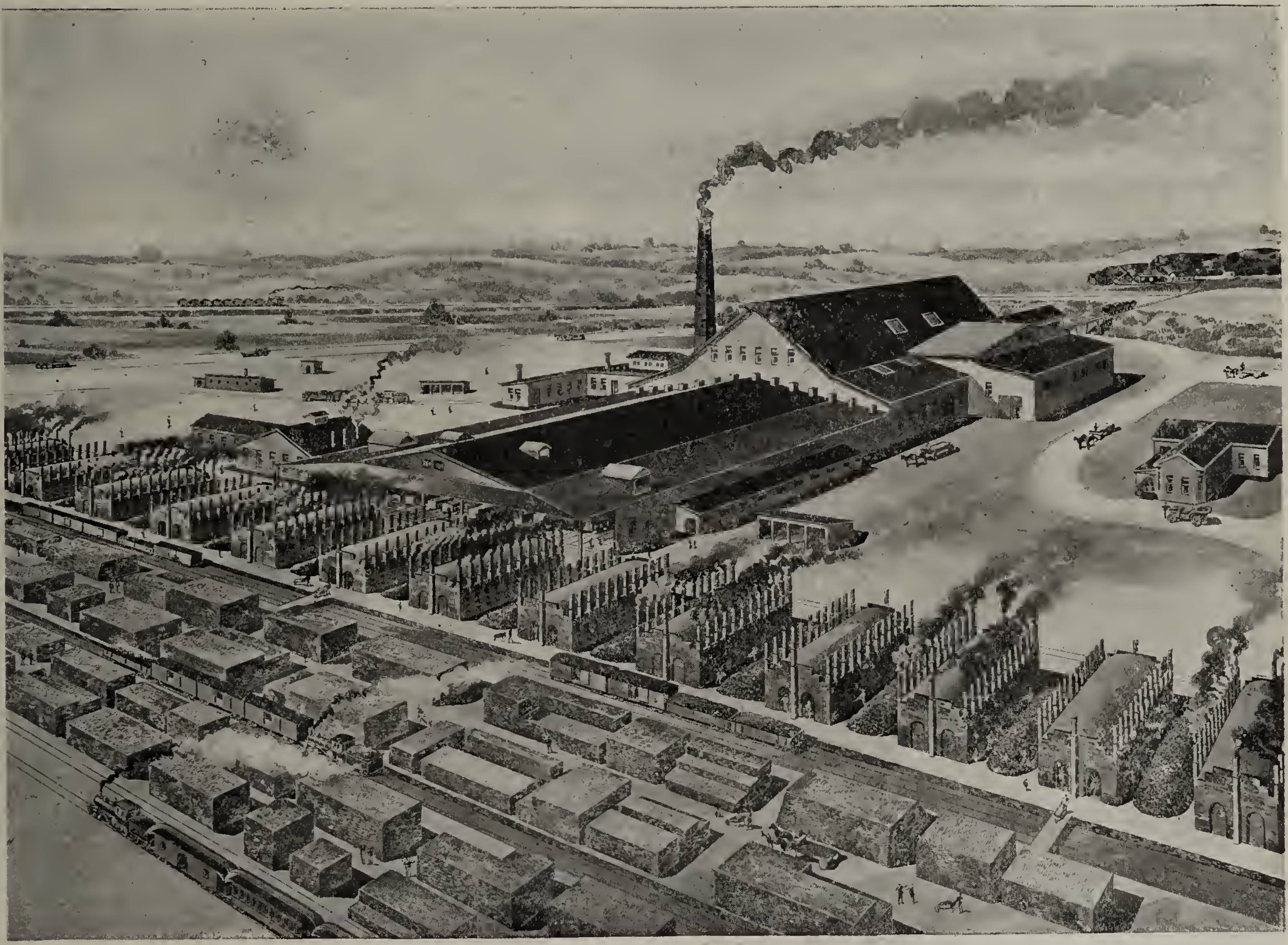
We are advised that the F. D. Lindsey Brick & Tile Co. near Chicago, O., of which Mr. C. B. Mayhugh is now in charge, is planning to manufacture a glazed face brick in granite, buff and gold colors.

# HOME OF METROPOLITAN BLOCK

## Gigantic Industry Which is the Outcome of the Growing Popularity of this Paver

The Metropolitan Paving Brick Co., of Canton, O., has been for many years one of the leading producers of street paving brick and block and its wonderful growth has been identical with the growth and development of that important branch of the clay industry. From comparatively small proportions this enterprise has developed to an industry of gigantic size, its colossal plants at Canton now producing over 500,000 paving block daily and its product finding a ready market extending from the Mississippi to the Atlantic Coast.

Its modernly equipped plants at Canton represent in machinery and equipment alone, an investment of over a million dollars and fully another million dollars has been expended in the perfecting of its organization and in the improving of its methods to secure a product without flaw, which has constantly been the aim of the company.



One of the Immense Plants of the Metropolitan Paving Brick Co., Canton, O.

No expense is spared by the company to keep ahead of the vanguard of progress—no new mechanical device that will help to make a better paving block is allowed to go untried. If it were possible to make the Metropolitan block only a few per cent better by substituting new machinery, all of the costly and ponderous machinery now in use at these plants would be superceded by new. The company flatters itself that it has the best in this line that money can buy, which is one of the reasons why it has supplied enough paving material to 200 cities of this and surrounding countries to build a driveway 25 feet wide from Chicago to New York.

The Metropolitan Company is the largest producer of paving brick in the world and produces 125,000,000 brick and block annually; more than an eighth of the entire production in America. These are government statistics and therefore authentic.

Four of the company's plants are located in the southern part of the city of Canton, O., a pair at either end of a 700-acre tract of shale that extends to the southeast for several miles.

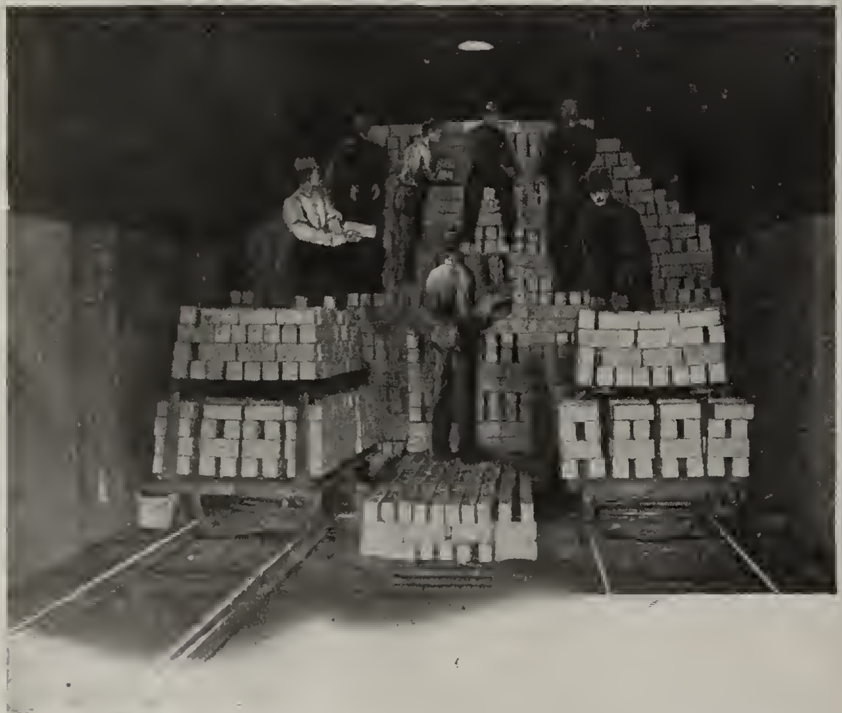
At the plants of the Metropolitan Paving Brick Co. may be seen the exemplification of the most modern method of brick manufacture. Everything is done on a mammoth scale—on every hand is seen the vast advantages resulting from system and plenty of money properly expended in all that is latest and best in machinery and equipment. Nature has provided a perfect mixture in shale which is taken from the bank with just the proper proportions of materials necessary for a perfect brick. The shale averages 25 to 40 feet in depth and is practically without top soil covering. Under the shale is a four-foot formation of limestone, under that a two-foot vein of coal, and below that another stratum of shale.

For each pair of plants there is a steam shovel at work scooping out the shale from the banks, one supplying what are known as the Canton and No. 6 and the other the Imperial and Royal. These monster shovels, weighing a quarter of a million pounds, operate from platforms on which the machinery that runs them is placed and can be swung in any direction.

Starting at the bottom of the shale bank the strong arm of the machine shoves the shovel up through the tough shale, biting its way to the top, catching in its cavernous jaws with each two trips, sufficient material to make a thousand brick.

Emptying Shale Cars at the Factory.

Reaching the top of the bank, the huge shovel is swung directly over a steel dump car, of which there are six in the train, holding two and one-half yards of shale, and discharges its contents into the car. This process is repeated again and again all day long.

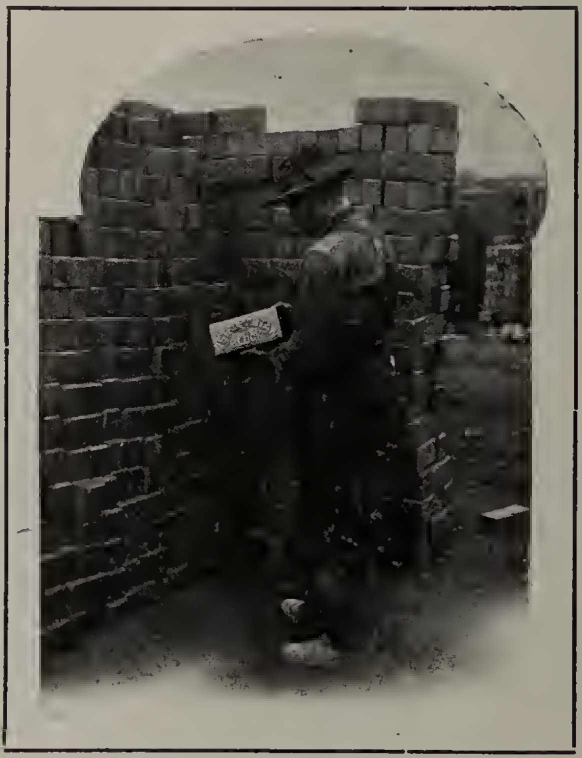


Interior of Kiln, Showing Method of Setting.

The gravity industrial railway system is used to excellent advantage throughout the plants and grounds. Beginning at the shale beds, automatic switches and brakes allow the cars to be switched, unloaded and sent back to the main line without a locomotive.

In the manufacture of the block, the mixture is dumped from the trestle at the factory into the huge shale bins and is carried by conveyors to the grinding pans that revolve rapidly while great wheels crush the shale to powder. It then leaves the rolls and pans and passes to a screen where the material already ground is screened, and the coarse portions are again returned for grinding. The fine mixture is then delivered by conveyors to the pugmill, where it is again thoroughly mixed and undergoes a treatment that resembles the kneading of dough in the making of bread. From here it travels out to what is termed a "stiff mud machine" and is there forced into long columns of plastic composition. This compression must be so perfectly adjusted that it shall be dense and compact.

Special machinery is used in this company's factories which is said to have no equal in the brick making world in point of strength and compactness, and in producing uniformity of product. As the endless column, eight and one-half inches wide and four inches deep, passes to the automatic cutting-table, an automatic cutter slices the column into fifteen separate pieces at each stroke, each forming either a brick or a block, as may be required. These brick "march" along, like a row of soldiers, to men standing ready to receive them and take them off the table two at a time. Each "feeder" places the two brick in his repressing machine and the remaining brick "march" on to other men, each of whom feeds his machine likewise. This portion of the work requires great professional skill in the adjustment of the machines, for an excess of pressure will destroy the bond that was created when the material went through the "specials" heretofore described; insufficient pressure would be equally faulty. When the brick, now thoroughly repressed, emerge, their edges are perfectly rounded and on one side are the words "Metropolitan Block" in raised letters, and smaller letters, depressed, form "Canton, O." in the center. These, to all appearances, completed block are placed on cars and propelled by gravity, are run into the drier. Here is another novel arrangement. The heat that burns the brick in the kilns is forced by huge fans, after it has done its work of burning the block, back to the driers. In other words, the waste heat from the kilns is used to give the brick its first hardening process. We are then rushed in to a big kiln where the now almost white block, after having been dried for 48 hours, are being piled up, tier upon tier, until the entire space has been filled. Some of



Inspecting Block on the Yard.

these kilns hold 175,000 brick. The openings are closed and cemented and the fires lighted.

We wonder how anything made by man can stand the awful heat that this pulverized shale must undergo for seven or eight days. In the adjoining kilns a peep-hole shows a fiery furnace in which steel, stone and iron would soon succumb. There day and night burning incessantly, this fire must be kept at a gradually increasing temperature. How any article made of earthly material can retain its shape or increase its strength of fiber almost passes belief. Then comes vividly to mind, the admonitions of long ago, when we were told of the everlasting punishment of the wicked.

The fuel used is of the highest grade bituminous coal that can be found in the market, two hundred tons being used by this company every day.

Nearby in other kilns the fires have been withdrawn and the brick and kilns slowly cooled. The big brick block weighing ten pounds each are found to be fully vitrified, the absorption of water being about two per cent. If so vitrified that they will take no water, the superintendent tells us, they will be too brittle; but averaging as low as one and one-half to two and one-half per cent., the peculiar quality of this Canton material is said to be tougher at a less absorption of water than any other in the world. In other words it will stand the hammering of horses' shoes and the abrasion of truck wheels at a high point of vitrication.

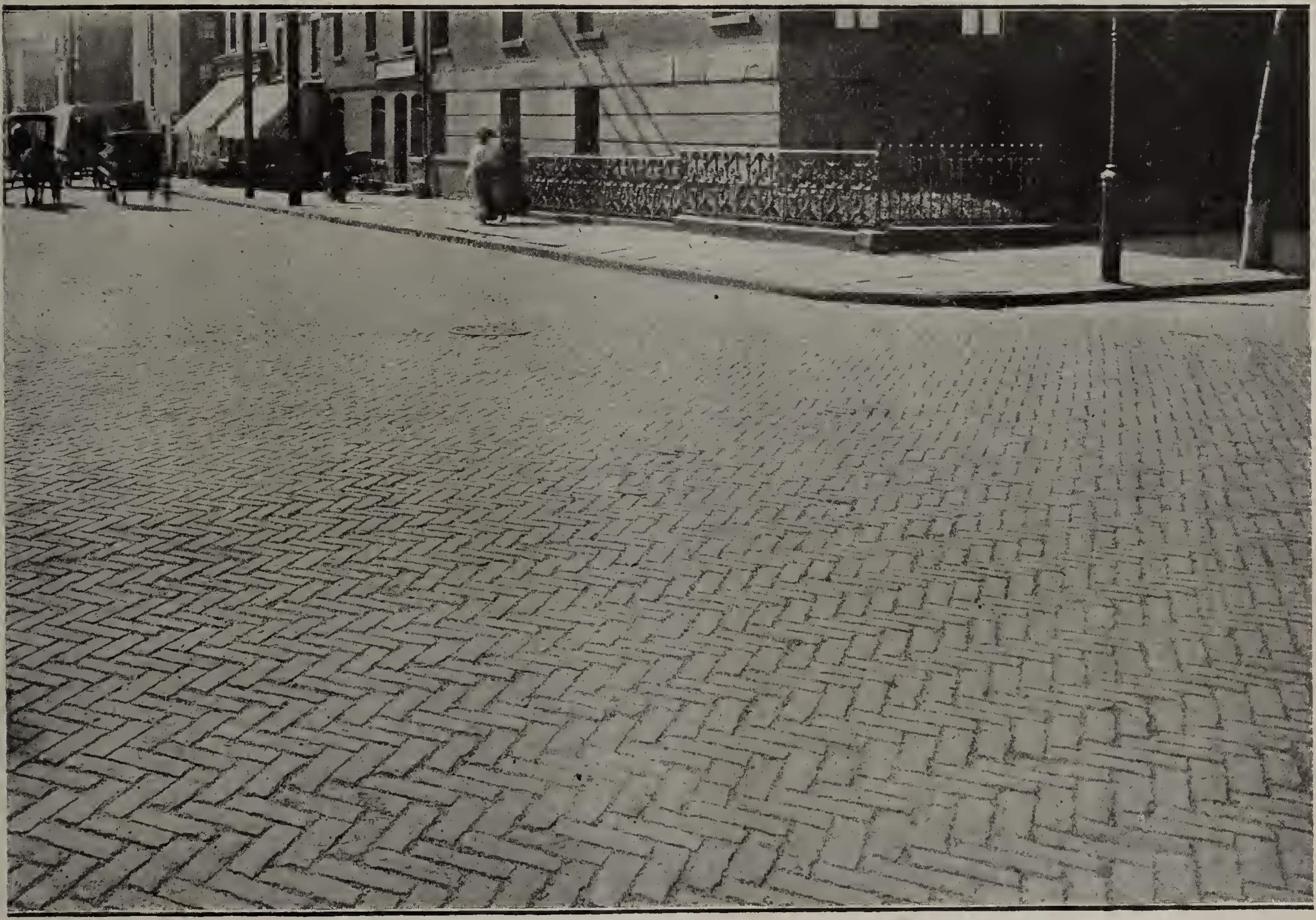
Loaded on wheelbarrows whose legs resemble sleigh runners, the finished block, now a deep chocolate color, are placed on railroad cars, the switches of several trunk line roads directly facing the kilns. Here, too, the gravity system is again apparent, the railroad tracks being depressed below the level of the kiln doors.

Across the tracks, on the big yards millions of block are stored during the winter months waiting for the orders which will in early spring and summer place them on the streets of the various cities and towns that are not wasting their taxes in endless repairs or patching but are building roads not only for the present but for future generations.

Water for all four plants is supplied from towers, into which the water is pumped, either from the creek or drilled wells. Blacksmith shops have been built at each of the plants where all minor repairs are made.

The company also maintains a large machine shop where all machinery repairs are made.

There are good brick barns for the housing of the company's teams and there are also dwellings for the teamsters and brick burners.



Nevius St., Brooklyn, N. Y., Paved with Metropolitan Block.

More than 600 men are employed in these four plants and they are kept busy the year round.

The suitability of these paving brick and block for building purposes was until recently unappreciated. Architects, however, within the past few years have specified the use of these block to a large extent and it is fast becoming an important feature of The Metropolitan Paving Brick Co.'s business.

Officers of The Metropolitan Paving Brick Co. are: C. W. Keplinger, president; W. E. Keplinger, vice-president; H. S. Renkert, treasurer and general manager; J. G. Barbour, secretary; A. P. Maurer, sales manager.

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

BRICK AND CLAY RECORD

Vol. XXXVIII. JUNE 1, 1911 No. 11

## EDITORIAL COMMENT.

Did you ever devote your time during the week between December 25 and January 1, figuring on your past year's work and, after wading through a sea of kiln records, shipping accounts and all the minute details of a year's business, awaken with a sickening, faint, gone feeling to the fact that you not only had no profit, but had actually run your plant, wearing out machinery and using valuable material, at a loss of several thousand dollars?

After the first shock was over, you probably began to investigate leakages in an endeavor to locate the seat of trouble.

You say everything seemed to have been going on about as usual and, as you had made several good turns in other avenues of business, you had not paid any particular heed as to how the books stood, as to profits and losses in your brick manufacturing business.

The sales end had been well taken care of; in fact, the demand had been a little better than usual, but turning to operating expenses you found your coal had cost you more, your raw materials had cost you more, the setters, wheelers and common laborers had demanded and received an advance in wages—small it seemed at the time—but enough to make an appreciable difference in the cost of the finished product. Everything had increased but the output and the price obtained for the completed article.

If you had taken the precaution to adopt some cost system, however simple, you would have discovered early in the year that you were gradually going behind, and as forewarned is forearmed, you would undoubtedly have retrenched in some departments and redoubled efforts to get your plant on a paying basis; and, if you found you could not make a profit in making one line of clay products, you would probably have changed your machinery to make some other article, which you were sure could be sold at a profit.

Cost accounting is not so complicated that it cannot be successfully applied to any ordinary clay plant, although, at first hand, it might seem to be an utter impossibility to apportion the proper share of expense to each department; but wherever men are at work about a plant, an accurate account should be kept of time and material consumed by the foreman of the department concerned. The foreman, if he is a thinker and a "live wire," will soon set to work to discover ways and means of cutting corners and producing results with less time and expense. These accounts will all be rendered to the head bookkeeper, by whom they will be properly tabulated, enabling him to show a daily, weekly and monthly cost account of all goods produced.

This method soon leads to a rivalry among the heads of departments as to who can best serve the interests of the company and make the best showing in his department; this will certainly mean advancement to those who show good results. We have in mind an institution where such methods are in vogue and it has led to considerable rivalry and frequent meetings are held in the evenings to discuss ways and means of producing an article at a lower cost without entailing greater effort on the part of the workmen.

With all this in view, we have secured a number of excellent articles on this most important question, "Cost Accounting," which will appear in our journal from time to time and, while we do not vouch for their practicability in all cases, they will certainly give food for thought and will, no doubt, suggest methods which will apply to your particular needs.

## IT MAKES THE WHEELS GO 'ROUND.

In the morning, before "starting time," the powerful machinery stands in your factory, silent and inactive. They are good machines, the best made; well oiled and in good repair, but they are accomplishing nothing.

The engineer turns on the electric current; the wheels begin to turn, slowly and laboriously, then faster and faster, and in a few moments the machinery is vibrating with intense creative energy and all is activity where before was the silence of death; the columns of clay come forth smooth, even and true, and in a short while many cars of finished brick are the result of power applied to machinery, either being useless without the other.

Advertising holds the same relative position to the business of the country, as this great mysterious electric fluid does to the dormant machinery. It is the magic power which keeps the wheels of the business world revolving. Take it away and revert to the old-time way, when Jones told Brown, and Brown told Smith that he hearn tell that the Glad Hand Machinery Company made powerful fine clay machinery.

Could all our large clay machinery concerns keep their mammoth factories going with such advertising methods?

While it may seem at times, to the disinterested party, that publicity is a trifle overdone, a little study shows that this is the only method possible to keep the great business of the country moving.

Why not turn on the current today, and let an Ad in Brick & Clay Record speed up your slackening business?

We have the Current—a small amount of your Money is the Key to the Switch. Better try a Volt. It has been known to liven up some pretty "Dead Ones."

## LET US REASON TOGETHER.

We want you to feel that this is your department. Our desire is to make it "an exchange" for practical ideas on subjects of interest to clay manufacturers. If you have devised some original labor saving method or have some knotty problem to solve, write and tell us of it. We also invite comment and criticism on ideas advanced in our journal with which you do not agree.

No literary style is necessary, only a plain statement of facts in "every-day language," remembering that "brevity is the soul of wit."

## STARTS THE BALL ROLLING.

Mr. Gangewere, superintendent of the A. G. Kahn Brick Co., Selma, Ala., must have known what was in our minds when he wrote the following, as it is just the kind of matter we want for this department, "live discussions on live topics of interest to clay workers." He states: "The writer, who is superintendent of the above company, has only one fault to find with your semi-monthly issue, i. e., before getting through one number of your valued journal the next issue is at hand, well loaded with interesting matter.

"Regarding your 'Superintendent's Department,' in each issue, we, as superintendents, should take more interest in the department in discussing our experiences and problems and I, therefore, will start the ball rolling by giving my latest experiences and wish to hear from others on the same line or any other subject of mutual interest.

"The capacity of our plant is 12,000,000 annually and we burn in up-draft kilns with capacity ranging from 40,000 to 700,000 to the kiln. We burn from 85 to 90 per cent hard, but found that occasionally some would melt and stick in the bottom of the kilns. In burning our last two kilns, 700,000 and 600,000, respectively, we discarded the fire doors altogether and found we burned them cheaper and had more hard brick.

"Our clay takes exceptionally hard firing, as we carry nearly a white heat, after water smoking the burning averages five days.

"Now, this might appear to some like a 'fish story' (to fire without doors) and the writer might be one of those to doubt such a statement, but, being on the ground, 'seeing is believing.'

"Are there others burning this way? If so, let us hear your experiences."

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## LEGAL DECISIONS.

The following legal decisions are of especial interest to clay manufacturers.

Repudiation by One Party of Contract.—Where a contract is made for future performance, and before the time for performance arrives one party positively and unequivocally repudiates the entire contract, or voluntarily puts it out of his power to perform his part, the supreme court of Florida says, Hall vs. Northern & Southern Co., 46 Southern Reporter, 178, that the other party may treat the contract as rescinded. In many cases where the repudiation or voluntary act rendering performance impracticable is entire and absolute, actions may be brought as for a breach of the contract, even before the time for performance has arrived.

Rights of Consignee when Carrier Makes Wrong Delivery.—Demand for goods wrongfully delivered by a common carrier, the supreme court of appeals of West Virginia holds, Clarke-Lawrence Co. vs. Chesapeake & Ohio Railway Co., 61 Southeastern Reporter, 364, is not a prerequisite to the maintenance of an action for breach of the contract. A contract limiting the liability of a common carrier to a certain amount in case of loss of or injury to the goods in consideration of a reduced freight rate does not limit the recovery in case of a delivery of the property to a wrong person, since a wrongful delivery is deemed not to have been within the contemplation of the parties. A wrongful delivery by a common carrier is technically a conversion of the goods, and the measure of damages is the value of the goods at the place stipulated for delivery, and interest thereon from the date on which the delivery should have been made; but if the goods be reclaimed by the carrier and tendered or delivered to the consignee, or the proceeds thereof paid to him, such tender, delivery, or payment will mitigate the damages. But if goods intrusted to a common carrier for shipment have been sold in advance of delivery for use on a special occasion, and in view of peculiar and unusual conditions, at prices yielding profit, and such expected profit, is lost by reason of delay in carriage or a wrongful delivery, it is not recoverable as part of the damages, unless the carrier had knowledge of the existence of the contracts, or the special purpose for which the goods had been purchased and shipped. A rejected compromise proposition made to a consignee of goods by a person to whom they have been wrongfully delivered by the carrier for the purchase thereof and payment of a profit on the same neither bars an action against the carrier for breach of its contract nor works a mitigation of the damages.

Validity of Contract as Affected by Inevitable Accidents.—The general doctrine that, when a party voluntarily undertakes to do a thing without qualification, performance is not excused because by inevitable accident or other contingency not foreseen it becomes impossible for him to do the act or thing which he agreed to do, the second appellate division of the supreme court of New York says, Marsh vs. Johnston, 109 New York Supplement, 1106, is well settled. Impossible conditions cannot be performed; and if a person contracts to do what at the time is impossible the contract will not bind him, because no man can be obliged to perform an impossibility; but, where the contract is to do a thing which is possible in itself, the performance is not excused by the occurrence of an inevitable accident or other contingency, although it was not foreseen by the party, nor was it within his control. There are, it is true, exceptions to this rule. It is not applied to contracts for personal services, nor for the sale of specific chattels, nor for the use of particular buildings. In these cases the courts imply a condition in the contract that the person or thing shall be in existence when the performance is required, and if the law interposes and renders performance impossible a party is excused; but the court finds no case in which the court has, in a case where the contingency was fully known to the party making the engagement, relieved from the obligation of performance, or, what is equivalent, has relieved him from the obligation of paying the damages resulting from the breach of his contract.

## INJURIES TO EMPLOYES.

It is the general rule, in actions by employes for negligent injuries, the United States circuit court of appeals says, in Byers vs. Carnegie Steel Co., 159 Federal Reporter, 347, that the mere fact of an injury raises no presumption of negligence on the part of the employer. The reason for the difference in the rule of presumption between actions by employes and actions by those not sustaining such relation, is the peculiar contract of the employe by which he assumes the risks incident to his employment, including the negligence of his fellow servants, and the resulting requirement that the injured employe show that the injury of which he complains was the result of a risk he did not assume. But there is no hard and fast rule that the doctrine that the matter speaks for itself can in no case be applicable in a suit by an employe against an employer for negligent injuries. On the contrary, the rule referred to has been applied in numerous cases of that nature, the applicability of the rule being determined by the circumstances under which the accident is shown to have happened. The proposition is fully supported, both by reason and authority, that where the character of an accident and the circumstances under which it occurs are such as to point strongly to a condition which is abnormal and dangerous, and to a long-continued existence of such abnormal and dangerous condition, under circumstances indicating that the employer by the exercise of reasonable care should have known of such condition, and where the evidence shows that the employe had no knowledge of such condition, and suffered injury through no negligence of his own and through no risk assumed by him, and that such abnormal and dangerous condition was the proximate cause of the accident, the fact of the relation of employer and employe does not forbid an inference of the employer's negligence from the fact of the accident under circumstances so stated; notwithstanding the absence of direct testimony, by personal observation, of the existence of the specific defect alleged to have caused the accident.

## KEEP FOR REFERENCE.

Area of a rectangle equals length multiplied by breadth.

Doubling the diameter of a circle increases its area four times.

Side of a square multiplied by 1.128 equals diameter of circle of equal area.

Surface of a sphere equals square of diameter multiplied by 3.1416.

Area of a triangle equals base multiplied by ½ the altitude.

Area of a sector of a circle equals one-half the length of the arc multiplied by the radius of the circle.

Diameter multiplied by 3.1416 equals circumference.

Circumference multiplied by .3183 equals diameter.

Radius multiplied by 6.2831 equals circumference.

Square of the diameter multiplied by .7854 equals area.

## CHANGE OF MANAGERS.

Chas. Elwell has resigned as manager of the Lawrence (Kans.) Vitrified Brick & Tile Co., and has been succeeded by Mr. Dave Littell.

## MAGNESITE FOR FIREBRICK.

Magnesite must be used alone in the manufacture of brick, as in contact with clay of any kind it acts as a powerful flue. The magnesite must be calcined before use, to deprive it of its carbon-di-oxide and to take out all its shrinkage power, which is very great before it is ground into powder. The calcined material is mixed with a little water and allowed to stand for a few days, and is then sifted through a fine screen, so as to make it of uniform composition. It is then pressed into brick by means of powerful hydraulic presses.

The brick must be handled very carefully, as they are extremely tender. They are dried in the same manner as ordinary clay brick and are burned at a very high temperature, it being usually necessary to fire with gas instead of coal. The finishing temperature is seldom less than Seger cone 23 1,590 Cent. and averages cone 26 1,650 Cent., and is costly as the brick must be "soaked" at a high temperature for some hours in order that the heat may properly penetrate them.

Much magnesite is quite unsuitable for brick making on account of the presence of apparently trifling proportions of impurities, and except for special conditions good fire clay brick are cheaper and better.

## DEATH OF PROMINENT CLAY WORKER.

Mr. Henry Hasbrouck, who has been for several years connected with the Sterling brick manufacturing establishment at Olean, N. Y., died recently, at the age of 61, at Williamsport, Pa., where he had gone to take a rest before taking up new duties with a firm at Conneaut, O. Mr. Hasbrouck was considered an expert at building up run-down plants and his services were in demand. He was prominent in business and Masonic circles, having served in various high offices in the Knights Templar Commandery of Poughkeepsie, N. Y.

## LIKES ELECTRICAL EQUIPMENT.

Mr. S. H. Alsip, manager of the Standard Brick Co., Belleville, Ill., informs us that they have had excellent success in the use of electricity at their plant. They use a 50 h. p. General Electric motor, and when all the machines are running it requires about 35 h. p. to operate the plant.

He finds the cost of operating to be about the same as when using a steam engine and says they have never had an hour's shut down or experienced any trouble with electric power since they had it installed.

## USE OF ROPE SLING.

Every brickmaker has, at some time or other, to lift a heavy piece of machinery, such as the upper portion of a pug-mill casing. At one time chains were always used to lift or "sling" such articles, but the treacherousness of chains, as compared with ropes, has led to their abandonment in all but the more old-fashioned works.

Ropes, whether of wire or thread, are far more flexible and elastic than chains; they are less liable to break without warning, and weights lifted by them are seldom likely to jamb so tightly as when chains are used. The only disadvantage of ropes is the necessity of being able to tie satisfactory knots, but this is an art which is easily learned with a little patience and a few trials.

New ropes should be allowed to lose their twist by hanging them by one end from a beam and attaching a weight to the free end. The weight must be sufficient to keep the rope tight without stretching it. When the weight has ceased to rotate the rope is ready for use.

## OLDEST TILE PLANT IN IOWA.

Many thriving tile plants are located in the rich state of Iowa, which is eminiently fitting as tile has played a very important part in the production of the record breaking crops for which Iowa is famous. The illustration shows a partial view of the Hedrick (Ia.) Brick and Tile Works, said to be the oldest tile plant in the state. It was established in January 1880 and has been in continuous operation every since. The plant has three round kilns and turns out 66 kilns of goods every season. Mr. C. E. Whitney, the manager, says that last year the plant netted the owners $8,500.

He says the tile business is duller than usual at the present time, owing to the fact that last year was the dryest this country has had in twenty years, and this year so far has also been dry, hence the farmer is not doing the amount of tiling, he would do in wet years. However, Mr. Whitney's faith in the industry is unshaken and he is making every tile possible and stacking them on the yard for the fall trade, which he says is always in excess of his supply. He states that the farmers were obliged to stop ditching on account of the dryness of the soil, but now that the rains have started, the tile business will soon pick up.

The Hedrick company has a well established reputation for making an excellent quality of tile and frequently "carries coals to Newcastle" by shipping tile into towns where there are tile plants in operation.

A Portion of the Hedrick (Ia.) Brick & Tile Works—Oldest Tile Plant in the State.

## GOOD DEMAND IN TEXAS.

C. E. Brandisch, of the Brandisch Drain Tile Co., Brownsville, Tex., says the demand for tile is immense and will be greater after the drainage ditches there are dug. He has recently installed a tile press to make 12 in. to 24 in. tile, as the demand for this size is great in that locality.

## CONTRACT AWARDED.

The National Drain Tile Co., of Terre Haute, Ind., has been awarded the contract to furnish $6,000 worth of tile to be used in a drainage system, near Loda, Ill.

## THOROUGH DRAINAGE.

**By C. B. Platt, Secretary Iowa Brick and Tile Association.**

To say that a farm is in a high state of cultivation does not necessarily mean that it is yielding maximum crops. More frequently it means that the land is being taxed up to its limits under the prevailing soil conditions. Generally, the farms, which are spoken of as highly cultivated, are well drained and under the supervision of the progressive farmer, will eventually become thoroughly drained.

With most people the development of any property is a very serious matter,—so serious that the majority of people prove to be too conservative. They lose too much time waiting for others to demonstrate the sureness of every proposition. Many people, now engaged in manufacturing drain tile, believe that the drain tile proposition has been demonstrated as a sure thing in results which are satisfactory to the farmer and they consequently believe that the subject of land drainage is now properly placed before the farmer and land owner. It has not been properly presented however, and is not a generally well understood proposition.

The farmer has undertaken tile drainage with one object in view and that the removal of surplus moisture. This is only partial drainage. Thorough tile drainage has three main divisions of benefit:

The removal of free moisture or moisture not available for growing plants:

The preparation of the land for the conservation or storage of moisture to tide over dry periods;

Tiling hillsides and rolling lands to prevent the washing of soils and to secure proper storage of moisture in rolling lands.

These three divisions are capable of containing all the ideas on land drainage, which might be advisable or necessary to advance in order to excite a more active interest in tile drainage on the part of the land owner or farmer.

Under the first division, it does not seem necessary to undertake much in an educational way, yet many farmers do not understand that free moisture is never present in the soil to the advantage of the growing plant and that its removal under drouth conditions, should there be any free water, is accomplished entirely without detriment to the possible use of such water as an aid to the plant. It is also well to tell the doubters that no useful moisture ever passes through a tile.

Under the second division comes the question of how deep to lay the tile. This would not matter in the original purpose of tile drainage—the carrying off of standing water—any depth out of the way of frost would do. However, since no one should ever spend the required money for this elementary reason, the depth at which the tile should be layed is a vitally important matter and should always be carefully considered. The tile should not be placed at a less depth than four feet, whenever possible. The reason for this, or one of the vital reasons, is that the depth of the tile is the depth of the open soil and the open soil is the storage place for moisture ready for use in growing crops. Open soils take in moisture very rapidly, hence the tile drained land conserves the rapid precipitation, while the untiled land allows a large percentage of it to run off and become lost.

It should not be a difficult matter to make the land owner or farmer see that where the ground is open, or in tile drained condition, rain fall sinks rapidly through the soil and the usuable quantity is absorbed; also, that one inch of water falling on tiled land is of much more storage value than three inches falling on untiled land; also, that in connection with the dry soil mulch, brought out in the dry-farming idea, deep tile drainage would make drouth failures an entirely negligible consideration. Thorough drainage and deep drainage, on the rolling lands, secure the same moisture storage advantages and in connection with catch basins put loss of soil, by washing, in the class of evils not to be feared.

If manufacturers of tile know these things they know that drain tile are the greatest producers and conservers of wealth in the world. The story must be told to the consumer that the manufacturer and the nation may profit and that the soil fertility be preserved for future generations.

### WANT AMERICAN MACHINERY.

Inquiries have been made at the American consulate in Spain, for American machines for making brick. Catalogs and all literature should be in the Spanish language, weights and measures could be expressed in the terms of the metric system, and prices given in Spanish equivalents. Address File No. 6722, Bureau of Manufacturers, Washington, D. C.

### DRAINAGE IN MINNESOTA.

The state drainage commission of Minneapolis will proceed with its work on hydrographic and topographic maps of the state during the next two years. It is hoped that the work will complete the state, giving a permanent record of everything pertaining to streams of the state.

George A. Ralph, for ten years drainage engineer for the commission, has been reappointed drainage engineer for a two-year term, and will continue to direct the work.

About twice as much topographic work as has been done also will be undertaken, until complete surface maps of the state are finished. The commission has found a wide demand for the maps throughout the state and will extend the scope of its work.

The legislature having made no appropriation, no new drainage work will be started, except one large ditch in Roseau county, which will be 100 miles long and will cost approximately $150,000.

### TILE NEWS.

Supt. Shaw, of the Acorn Brick & Tile Co., at Glenville, Minn., expects to commence making tile shortly, but it will take several months to bring the plant up to its full capacity.

The Minter City (Miss.) Tile Co. elected the following officers for the year: P. A. Malone of Greenwood, president; Eli Abbott of Minter City, secretary and treasurer, and R. Y. Wright, manager; directors, P. A. Malone, S. L. Gwin, D. T. Michell, H. L. Walton, F. R. Streater, Dr. W. T. Johnson. This progressive concern has been given a splendid patronage, and many improvements have been added to its excellent plant and the quality of the tile manufactured is excellent. Indications point to this being the most successful year the company has ever experienced.

The plant of the Camden, Tenn., Brick & Tile Co. is now in operation and has a capacity of 10,000. Drain tile will be the chief output.

The tile factory at Waverly, Ia., is in operation, after a general overhauling of the machinery.

The first tile factory in the state of S. Carolina will be established at Bowman, Orangeburg County.

### A THRIVING ALABAMA PLANT.

The Morris Brick Co. is a thriving plant located at Choccolacco, Ala., where they have a fine bed of shale 80 feet or more deep. The factory grounds comprise 56 acres fronting on the Southern railway, with spur track running into the grounds. The main buildings are frame and of a roomy character. The clay is an ordinary red clay which burns a beautiful cherry red. This shale is underlaid with a splendid grade of gray shale known to be of great depth. The clay is procured near at hand, and hauled to the factory in small cars by cable. It is put through an American dry pan, through a disintegrator, then through an American clay screen; tempered with water in the pugmill and run through a Chambers machine.

The brick are dried in a tunnel drier, which is supplied with 150 steel cars, and afterwards burned in up-draft kilns. Coal is used for burning and for power. The plant has a capacity of about 50,000 per day, and is procured near at hand at $1.15 per ton.

The power house is supplied with a 150 h. p. engine and two 150 h. p. boilers. The plant was established several years ago and works practically the year round.

The officers of the company are C. J. Simmons, president; H. J. Dunn, manager. About thirty men are employed and the plant represents an investment of about $80,000.

### APPOINTED SALES AGENT.

Mr. H. A. Hunt has been appointed Eastern sales agent of the Edgar Allen American Manganese Steel Co., with headquarters at New Castle, Del., which appointment was made in order to fill the vacancy caused by the resignation of Mr. V. W. Mason, Jr.

### PLANT PURCHASED.

We are advised that the Pennsylvania Pressed Brick Co., Altoona, Pa., has purchased the interests of the Altoona Pressed Brick Co. The Pennsylvania company is not at present making any sand-lime brick but is devoting its entire attention to the manufacture of dry pressed shale brick. The officers of the company are: Chas. H. Morgan, president; B. V. Westley, secretary-treasurer; Eugene Spellman, superintendent, and W. L. Longnecker, manager.

# INAUGURATION OF STREET PAVEMENT TESTS

### Paper Read by James E. Howard, Bureau of Standards, Washington, D. C., Before the National Brick Manufacturers' Association at Louisville, Ky.

In co-operation with Mr. Will P. Blair, president of your association, and secretary of The Paving Brick Manufacturers' Association, the Bureau of Standards has undertaken some observations on the behavior of street pavements for the purpose of defining the conditions which are present and obtaining exact information thereto. But before entering upon a description of this investigation allow me to present, briefly, a few notes on other matters connected with brick and brick work.

First in regard to Scoria brick. This kind of brick is being used in the City of Washington for stretchers alongside the street car tracks and for paving the space between them. They are obtained from Middleborough, England; made from blast furnace slag; cast in a rotary casting machine; subsequently annealed, and cost in Washington about $50 per thousand.

As castings they contain many small blow holes which are most numerous near the top surfaces. When laid they are placed bottom side up. The blow holes do not communicate with each other, therefore the material, as a whole, is nonabsorbent. Red ink does not penetrate it.

There are three distinct shades of color in an individual brick. At the immediate surface a grayish blue, next a dark blue zone, while the body of the brick has a greenish blue color. The specific gravity varies with these shades of color, being lightest at the surface and heaviest in the body of the brick.

In the body the specific gravity is 2.982, which is equal to a weight of 186.1 lb. per cu. ft.; a heavier brick than one of burnt clay.

Tests show the brick to have a compressive strength of

| | |
|---|---|
| When tested on side | (19,470 lbs. per square inch |
| | (14,940 lbs. per square inch |
| | (17,770 lbs. per square inch |
| When tested on end | (21,510 lbs. per square inch |
| | (10,030 lbs. per square inch |
| | (12,900 lbs. per square inch |

Next presenting a few specific gravity determinations on brick from different parts of the kiln supplementing those results which were placed before you at an earlier convention, on the well known fact of the decrease in density of the material as the hardness of burning is increased.

| Kind of brick. | Location in kiln. | Specific gravity. | Weight per cubic foot, pounds. |
|---|---|---|---|
| Common | Green brick | 2.682 | 167.4 |
| Common | Top | 2.680 | 167.2 |
| Common | Middle | 2.63 | 164.1 |
| Common | Middle | 2.577 | 160.8 |
| Common | Arch | 2.543 | 158.7 |
| Face | Green brick | 2.695 | 168.2 |
| Face | Bottom | 2.653 | 165.5 |
| Face | Middle | 2.62 | 163.5 |
| Face | Middle | 2.69 | 162.2 |
| Face | Top | 2.575 | 160.7 |

The face brick were burned in a down draft kiln.

It will be noted that the difference in specific gravity between the green brick and the hardest brick of the same clay ranged from 4½ to 5 1-5 per cent.

Now in regard to the use of these results. As an index of porosity, the sp. gr. of the material taken in connection with the weight per cubic foot of the intact brick is a very reliable factor. The percentage of total voids can be closely judged of from the weight per cu. ft. of the brick. The question presents itself whether it would not be a satisfactory substitute for the absorption test to specify the weight per cubic foot which the brick should possess. Is it defensible to report the voids by the common test by immersion knowing that the water may not reach all of them and furthermore accrediting the material with only one-half of its real porosity by stating the results in terms of weight, instead of by volume.

### Next as to the Hygroscopic Character of Burned Clay.

Wood exposed to the air is constantly changing in weight, due to its gathering moisture or imparting it, according to changes in the humidity of the atmosphere. Relatively, brick appear to absorb but little moisture in this manner.

Two tables will be presented, one showing results with different kinds of wood and the other with ground brick and small pieces of broken brick. The wood samples gained in weight from four and one-half to six per cent, the ground brick gained .2 per cent, while the broken brick only .06 and .07 per cent. That is in round numbers the wood samples gained from 20 to 60 times as much as the brick samples; from which it would seem that brick is not naturally a damp material for building purposes.

MOISTURE ABSORBED BY DIFFERENT WOODS.

| Kind of wood— | Per Cent of Moisture. |
|---|---|
| Poplar | 4.9 |
| Pine | 5.5 |
| Maple | 5.5 |
| Cypress | 6.1 |
| Oak | 4.5 |
| Mahogany | 5.3 |

MOISTURE ABSORBED BY BRICK.

| Kind of brick— | Per Cent of Moisture. |
|---|---|
| Ground material from common brick | .2 |
| Small fragment | .06 |
| Ground material, from face brick | .2 |
| Small fragment | .07 |

The samples of wood were exposed to an atmosphere of 80 per cent relative humidity, the samples of brick 85 per cent.

A few remarks on another phase of the subject before describing the pavement tests.

In the case of steel and cast iron the permissible working loads are about one-third the ultimate compressive strength of the materials, but for brick work it amounts to only one-seventh to one-twelfth the usual compressive strength displayed by piers laid in the above mentioned mortars. This is not all, when hard burnt brick are laid in a 1:1 cement mortar the crushing strength may be not less than twenty times the allowable working load of the code.

And even this may be exceeded. A brick pier was recently tested at the Pittsburg laboratory of the Bureau of Standards which displayed a crushing strength of 6,250 lb. per sq. in., or 25 times the allowable working load of the above mentioned building code. More should be said about this pier. It was made of wire cut, Kushequa brick, laid on edge with a hollow core, making a pier 11½ in. square on the outside, with a 6¼ in. core. It was 7 ft. 9½ in. high, laid in 1:1 cement mortar and tested when 25 days old. The total crushing strength of this pier was 582,480 lb. or 291 tons. Its strength, 6,250 lb. per sq. in., on the net section of the brick work, places it at the head of the list of brick piers thus far tested.

But other strong piers of a series of tests have been laid up and correspondingly high results will be looked for.

### Street Pavement Tests.

These tests are being conducted in the same manner as those on other engineering structures by the Bureau of Standards, such as bridges of large span, the structural members of tall buildings, and the shells and other parts of steam boilers. The method employed consists of the careful determination of measurable changes in dimensions, general and local, which take place in all structures, resulting from the loads which they sustain or by reason of changes in temperature. The same methods of study and analysis are being applied to the subject of street pavements as those which have been used to demonstrate the strength and durability of permanent structures in iron and steel.

Probably there is no greater engineering problem, today than that which pertains to road or street pavements. It is a problem of unusual economic importance.

Information has been acquired in the past as to how it is best to use iron and steel and what the limiting stresses are beyond which it is not safe to go. We are now engaged in developing information of this class in reference to pavements. How the conditions of the heaviest traffic may be successfully provided for. This necessitates the most careful inquiry into the behavior of the materials which are used, and also the behavior of the pavements themselves regarded as engineering structures.

The manner in which this is being done consists of establishing certain reference marks in the pavements, the conditions of which are initially noted, and subsequent remeasurements of the same under other conditions of temperature and loads.

The reference marks, are small pieces of bronze wire inserted in drilled holes and cemented in the brick. The upper ends of the wires have small counter-sunk holes which center and fix the length of the strain gage so called, an instrument for measuring the minute changes in lengths which take place. Under favorable conditions differences in these gaged lengths, so small as one ten-thousandth of an inch, may be detected.

A few degrees difference in temperature will make differences in the gaged lengths which are expected to be measured. The effect of change in temperature in different parts of the roadway, taken in longitudinal and in transverse directions will each be measured. The general slope or crowning of the street will be noted and changes in the same looked for under different thermal conditions observed at different seasons of the year.

The effects of wheel pressures, the maximum depression which occurs and the distributive capacity of the pavements will in turn be noted. The inquiry, in fact, is one directed toward ascertaining those changes in shape or dimensions which are constantly going on, noting where maximum and minimum effects are found and determining with precision the magnitude of those changes.

Proceeding in this manner, it is expected to eventually learn what constitutes durability and permanence in pavements in the same way as we now judge of the safe working loads in a bridge. Also to learn how to further increase the capacity of the pavement for successfully meeting greater service requirements than those which are now commonly found.

Since changes in temperature and changes in load, are each accompanied by corresponding changes, in form or dimensions it is the purpose of these observations on the pavements to ascertain over what range such changes in dimensions may take place without permanent injury to the roadway, when a zone of danger is being approached, and clearly define in measured terms what happens.

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## MORE ABOUT FILLERS.

Mr. F. R. Dunn, general manager of the Dunn Wire-Cut-Lug Brick Co., Conneaut, Ohio, answers an inquiry, which we referred to him, as follows:

"With reference to the inquiry you have received as to why concrete pavement is not better than brick pavement, if the cement filler is of such vital importance in the proper construction of brick pavements, there are a number of reasons, among which are the following:

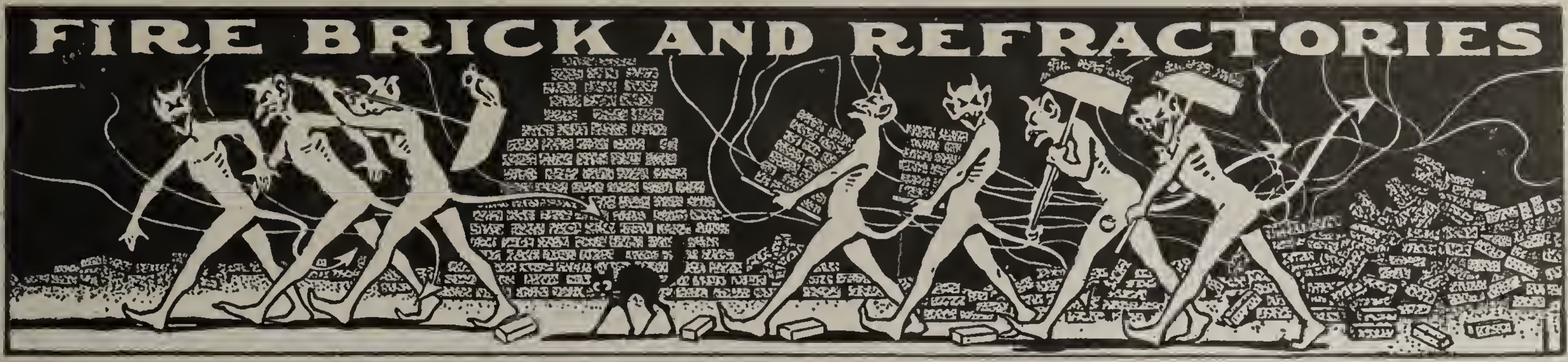
"If shale or clay, suitable for making paving block, could be manufactured in solid pieces that would permit of one piece covering an entire street, or even a block in length, it would afford a much more substantial pavement, but in as much as this is entirely out of the question, it has been necessary to manufacture shale or clay paving material into units of as large size as practicable. For many years it was thought that the building brick size of paving brick represented the largest unit that could be made or handled, but it was later found that the size of these units could be increased, and as a result, we have a block of standard size which is about 8½x4x3½ ins.

"Therefore, as the size of the block is limited, it is necessary to use some material for bonding these block together, and we freely admit that the mixture of cement and sand furnishes a material which is the next best to paving block.

"The relation of the very best cement grout as a filler or bonding material to vitrified brick or block pavement occupies the same relative position as a good strong mortar to brick, used for building purposes. Clay products cannot be made in one piece for an entire building and therefore must be made in smaller units, and these must be bonded together. While cement mortar is very good for brick work in buildings, we do not admit that to make it all of cement and eliminate the brick will make a good building.

"Ordinarily lime mortar has been used for ages in the construction of brick buildings, yet, one would never think of building an entire building of lime mortar or of eliminating the brick.

"I trust this will satisfy your correspondent as to why we think it best to use cement filler on brick pavements and yet do not admit the advisability of building concrete pavements."



# COST SYSTEM OF A FIRE BRICK PLANT

By H. A. Phillips

The genesis of the plan hereinafter described was under most peculiar conditions. Circumstances placed me in charge of a fire brick manufacturing business that had been losing money for several years. Investigation developed that there were absolutely no records, even account books, to guide me. While the workmen were honest and really competent, they had grown so accustomed to doing as they pleased that instructions were tolerated, not accepted as mandates. A more discouraging combination of conditions would be hard to find and the methods by which this business was brought to a smoothly running machine, of which comprehensive records were accessible, may be instructive to clay workers.

Every manager knows the difficulties incidental to changing methods in a factory; and this very knowledge is frequently his reason for not installing a system that will show the exact condition of the business at all times. I realized all this, also that lack of practical knowledge of clay working placed me in an exceptionally bad position to antagonize the working force, but the necessity of knowing the trouble before making any attempt to cure it compelled a solution. By meeting the men in a friendly way and constantly asking questions, I soon collected irrefutable evidence that no one knew what goods, or even materials, cost, and in a confidential talk with the superintendent I showed him these facts and how the continuation of the existing conditions would shortly result in all of us being out of positions.

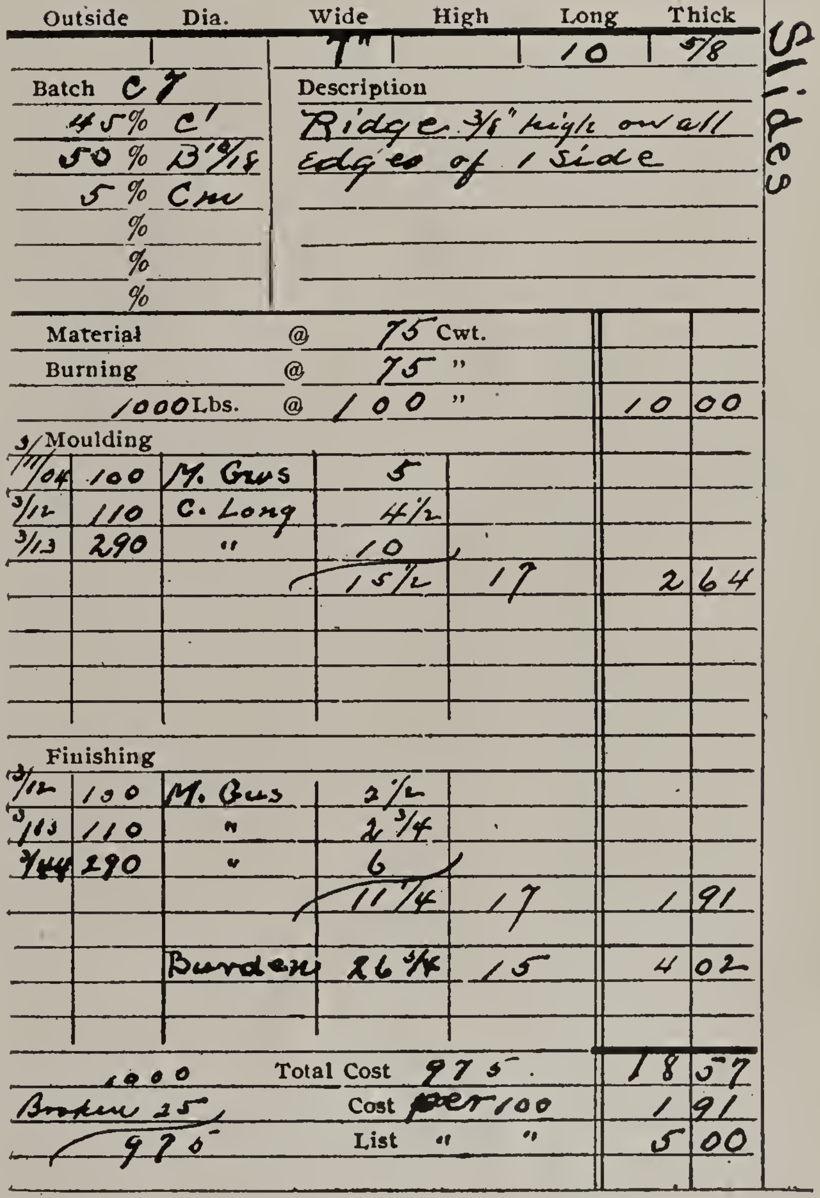
Like most men, he was amenable to reason, and when he realized that his personal reputation also would be injured by failure of the business he cheerfully agreed to help. Through him the workmen were brought to understand that I had every confidence in them and would depend on their conscientious efforts to assist. Suggestions from all were invited and everything was done to lead them to believe that the whole system was really what they had advised. They felt their importance and I obtained results.

To call this a fire brick manufacturing business is not sufficiently specific, as it consisted almost entirely of the manufacture of an extensive line of special shapes, some of which were to confine heat, some to conduct heat and some to withstand sudden extreme changes of temperature.

In any cost system the first division must be between cost of manufacture, that is, the stage at which goods are ready to either ship to customers or to place in warerooms, and selling costs, those expenses incidental to finding buyers and delivering the products. Subdividing cost of manufacture, or factory cost, we have prime costs, those that can be charged direct to any unit or operation, and overhead expense, or factory burden, those that cannot be so charged, but must be known, and the proper share apportioned to each unit or operation. Selling costs need no subdivision for our purpose and can generally be classed entirely as non-productive.

System is the orderly arranging and recording of all the units that compose a business and no unit is so unimportant but that it must receive the most careful consideration; that is, analysis must extend to each basic fact.

Analysis in this case extended to the following facts: actual cost of each material when it was in condition to be mixed with others; cost of each mixture when it was ready to be molded, and separate costs of molding, finishing and burning each lot of a given shape.



| Outside | Dia. | Wide | High | Long | Thick |
|---|---|---|---|---|---|
| | | 7" | | 10 | 5/8 |

Slides

Batch C 7
45 % C'
50 % B'9/18
5 % Cm
%
%
%

Description
Ridge 3/8" high on all
Edges of 1 Side

| | | | | | | |
|---|---|---|---|---|---|---|
| Material | @ | 75 Cwt. | | | | |
| Burning | @ | 75 " | | | | |
| 1000 Lbs. | @ | 100 " | | | 10 | 00 |
| Moulding | | | | | | |
| 3/11/04 | 100 | M. Gus | 5 | | | |
| 3/12 | 110 | C. Long | 4½ | | | |
| 3/13 | 290 | " | 10 | | | |
| | | | 15½ | 17 | 2 | 64 |
| Finishing | | | | | | |
| 3/12 | 100 | M. Gus | 2½ | | | |
| 3/13 | 110 | " | 2¾ | | | |
| 3/14 | 290 | " | 6 | | | |
| | | | 11¼ | 17 | 1 | 91 |
| | | Burden | 26¾ | 15 | 4 | 02 |
| 1000 | | Total Cost | 975 | | 18 | 57 |
| Broken 25 | | Cost | per 100 | | 1 | 91 |
| 975 | | List | " " | | 5 | 00 |

Fig. 1.

Several classes of clay were required for the different formulas. All being subjected to similar treatment, the description of one will suffice. The plant was located where a railroad siding was out of the question, necessitating the addition of freight, cartage, labor and burden to the price at pit to show the cost of each lot received. To learn the percentage of clay, we weighed a ton, placed it on drier, and when sufficiently dry to be crushed in the hand again weighed it. Having obtained the percentage of moisture, it was a simple matter to figure the amount of clay, and by dividing the total cost by the net quantity of clay, we determined the actual cost per ton of clay. This method proved conclusively that a clay for which we paid $5.00 at pit actually cost $8.60, or over 70 per cent more than they had formerly figured at cost.

No doubt their method of basing estimates on first cost will appear ridiculous, yet how many fire brick makers, using clay from their own pit, place no value on the clay, but count cost of labor only?

The delicacy of many of our products required that grog be selected and graded much more carefully than for ordinary fire brick. To assure positive knowledge of all ingredients, we used only our own products as raw material. As we purchased old materials from our customers, the price paid to them set the value on our own accumulations. This material was ground, then separated according to size of particles by a rotary screen, the proportion of each grade noted and value of each obtained. Cost of the prepared grog consisted of value of raw material, labor, power, depreciation or upkeep of machinery and burden.

The next step was to know the cost of the several mixtures used. All formulas were by volume, so a standard volume was adopted and its weight ascertained. Cost of labor, power and depreciation or upkeep of machinery was added to first cost of material.

All data pertaining to cost of these operations was written on separate plain cards and similar ones were filed together, so averages could easily be figured. These records showed the actual cost of the prepared materials placed at the molders' benches, ready for use.

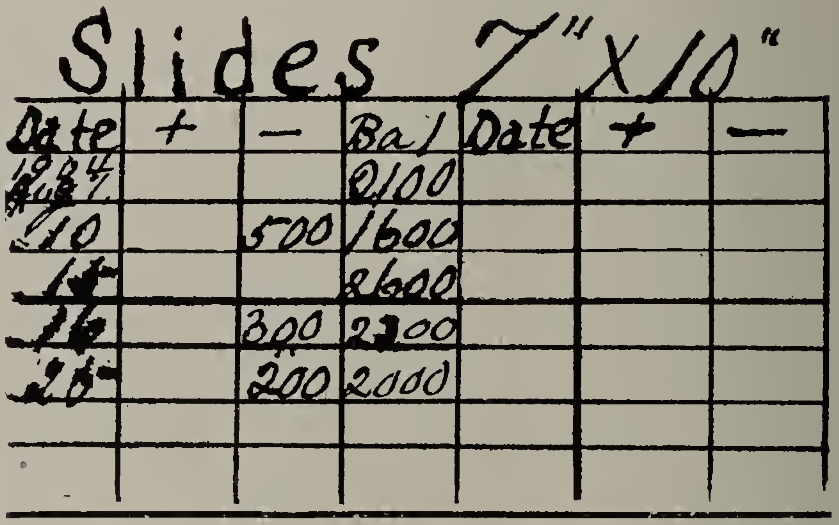
Each lot of goods was treated as a unit, and when an order was sent into the shop, a form (Fig. 1) was made out. In the full length margin the name of the article was written and dimensions, description and material of which the goods were to be made were noted in spaces made for the purpose. In the columns under "molding" were noted dates, quantity, name of workman, time and rate of wages; total direct cost was extended. Similar data of "finishing" was noted under that heading. Pro rata share of "burden" was noted in column and cost of material and burning was extended after the goods came from the kiln. The sum of the amounts in this column showed the total cost. The number of pieces were counted and compared, breakage or other loss deducted and correct number of shapes written before "total cost." By division the actual cost of each perfect piece was ascertained, and by comparison with other lots it was easy to learn for what class of work any workman was best suited, what quantities were most economical to make, average percentage of breakage and many other facts that were useful in planning economies and appraising men and methods.

Another plain card was used to show cost of burning; a separate card being used each time. This cost included labor, setting, firing and emptying, burden and fuel. Some of each lot of goods were weighed, the weight of the entire lot calculated and placed in front of "lbs." on the cost card (Fig. 1) for that particular lot and the extension of the cost of the material and burning completed the units on that card. The total cost of burning a kiln was divided by the total number of pounds it contained and the quotient was the cost per pound.

As goods were taken from the kiln, those for immediate shipment were laid to one side and the balance placed in the warerooms. Manufacturing costs ended and selling expenses started with the entry of stock placed in wareroom on the perpetual stock account cards (Fig. 2) which contain four sections of four columns each. The name and dimensions of the article were written along the top; in the first column, the date was written; in the second, the additions to stock; in the third, goods taken from stock, and in the fourth, the balance on hand. The four section arrangement permitted the keeping of records covering a long period and gave excellent opportunity to learn the average demand for each article, at what season the demand for it was greatest, and the minimum quantity that can be depended on to fill orders promptly; knowledge that is essential to properly take care of customers, without locking up capital that can be put to better use.

The foregoing has dealt almost entirely with direct costs, merely mentioning burden, or non-productive expenses, incidentally. The first factor of burden is rent, or those expenses that are caused by occupancy of the real estate. Interest on money invested, taxes, ground rent, mortgage interest, etc., should be included under this heading and the total charged to manufacturing and selling departments in proportion to the share each occupies. In many cases, the part charged to manufacturing should be sub-divided among departments or even machines, but in our case such sub-division would have increased labor without any advantage.

Heat and light were charged to selling expense, as a separate furnace heated that department only and almost no artificial light was used in the factory. Drying floors were heated by separate fires and the fuel for them was charged to that work.



Slides 7"X10"

| Date | + | — | Bal | Date | + | — |
|---|---|---|---|---|---|---|
| 1924<br>Aug. 7 | | | 2100 | | | |
| 10 | | 500 | 1600 | | | |
| 14 | | | 2600 | | | |
| 16 | | 300 | 2300 | | | |
| 26 | | 200 | 2000 | | | |
| | | | | | | |
| | | | | | | |

Fig. 2.

Coal and other supplies for boiler, engine, shafting, pulleys and belting were charged to power.

An account for each machine was kept and all repairs and renewals of parts were charged to it. From these records we learned the approximate cost of doing a certain amount of work with each and based charges for depreciation or upkeep. This assures the placing of such expenses on the operation to which they belong.

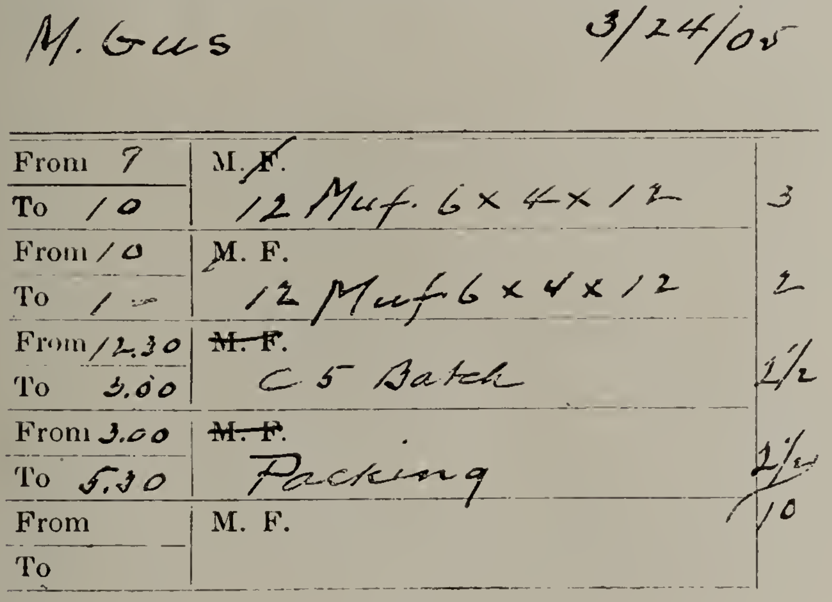
Carting ashes to dump and other minor expenses were charged in a miscellaneous account and spread over all operations.

Selling and office expenses covered part of rent, all telephone charges, cost of stationery, traveling, advertising, cartage, packing, etc. About one-third the time of one clerk was required to keep factory records and that portion was so charged, all other salaries being charged to selling.

Determining the cost of non-productive labor and apportioning it was an especially hard proposition in this business. In the first place, the superintendent was a worker and much of his time was chargeable to specific work, exactly the same kind of work as other men were doing. He received thirty cents an hour whereas the others received only seventeen. To charge thirty cents an hour to productive work he did, just because he happened to do it, and seventeen cents when another man did exactly similar work, was obviously unfair and misleading. To overcome the difference, each was figured at seventeen cents and the balance (thirteen cents) was charged to superintendence.

A fresh card (Fig. 3) was issued each morning to each man., At the top of the card the name of the workman and the date were written. The letters in the main division stand for "molding and finishing," as most of the operations came under one of these heads, and crossing one of the letters designated that the other was the operation performed; if doing neither, he crossed both letters and noted the work to which time was to be charged. The time of starting and that of finishing each job was noted in the first column. Each man left his card in the office when he quit work for the day, and the following morning a clerk extended the time on each job. The total showed the number of hours he had worked. All productive time was distributed—noted on the respective cost cards; and total productive and non-productive time were entered separately on that man's monthly card. These cards were arranged with the workman's name, the month and the year written at the top, the days (1-31) were in the first column, productive time in the second column, non-productive time in the third and total in the fourth. These showed the number of hours he worked, and by checking the last one for which he had been paid, it could be told at a glance how much time stood to his credit.

To enable me to make comparison of general conditions without having to hunt through a lot of details, I used a card with seventeen columns. Data were collected from both the cards and the ledger. To assure uniformity in compiling these data, a sheet of instruction was prepared as follows:



M. Gus 3/24/05

| | | |
|---|---|---|
| From 7<br>To 10 | M. ~~F.~~<br>12 Muf. 6 × 4 × 12 | 3 |
| From 10<br>To 1 | ~~M.~~ F.<br>12 Muf 6 × 4 × 12 | 2 |
| From 12.30<br>To 3.00 | ~~M. F.~~<br>C 5 Batch | 2½ |
| From 3.00<br>To 5.30 | ~~M. F.~~<br>Packing | 2½ |
| From<br>To | M. F. | 10 |

Fig. 3.

Column 1—Date.
" 2—Rent.
" 3—Salaries.
" 4—Selling and Office Expenses, component parts named and ledger folio noted.
" 5—Advertising, component parts named and ledger folio noted.
" 6—Cartage, only the amounts that are for trips between works and customers; charges for hauling any material to the works are to be figured as one of the costs of that material.
" 7—Factory Expenses, component parts named and ledger folio noted.
" 8—Non-productive Hours, total non-productive hours taken from individual monthly cards and figured at seventeen cents an hour and cost of superintendence.
" 9—Total, sum of all the foregoing amounts.
" 10—Productive Hours, total productive hours taken from individual monthly cards.
" 11—Pro Rata, quotient obtained by dividing "Total" (9) by "Productive Hours" (10) to be charged to products in addition to direct costs.
" 12—Materials, cost of all materials used during the month, taken from stock cards.
" 13—Labor, cost of all productive hours, taken from individual monthly cards.
" 14—Grand Total, sum of columns 9-12 and 13.
" 15—Goods Delivered, valued at cost.
" 16—Stock Increase, valued at cost.
" 17—Stock Decrease, valued at cost.

Having these data, it is is simply a matter of comparing the sum of columns 14 and 17 with the sum of columns 15 and 16 to find whether the business has been conducted at a profit or a loss.

In giving publicity to this system, I do so with full knowledge that many cost accountants will take exception to parts of it and I fully realize that to apply it in its entirety to any other business would probably prove to be an error. It was arranged for a specific case, having many peculiarities and it did work successfully, not only in showing the conditions, but also in pointing out ways and means by which economies could be inaugurated.

Finally, let me state, that no one who is conducting a business without keeping complete records of all transactions, should be discouraged by the mass of details and work that appears to be necessary. The only real labor is in planning the system, to keep it up is mere routine. Remember that in the case described a six-dollar-a-week clerk did almost all the work in about three hours each day.

## MAKING IMPROVEMENTS.

We are informed that at a special meeting of the Utica (Ill.) Fire Brick Co., held in Chicago recently, that the company was reorganized with Geo. J. Gleim, of Ottawa, president, and F. M. Drummond, secretary, treasurer and manager.

The new company plans adding modern equipment and improved facilities for connecting the pits and the works, and expects in a short time to have this industry running to its full capacity. The clay used by this company is of a very fine quality and much of it is sold "raw" to be used by steel mills as linings for furnaces. The head office was moved from Chicago to Utica. The company will continue to make fire brick.

## DOING A GOOD BUSINESS.

The annual meeting of the stockholders of the Clymer Brick & Fire Clay Co., was held at Indiana, Pa., a few weeks ago. The following were elected members of the board of directors for three years: Henry Hall, T. L. Snyder and H. A. Critzer. H. C. Christy was elected a director for a term of one year to fill the vacancy caused by the death of Thomas Bellis. Reports showed the company shipped 754 cars of brick during the last fiscal year from the Clymer yards, and that the outlook for the current term is that this volume would be increased by not less than 25 per cent. The financial statement showed also that the company has closed a most prosperous year.

The Clymer company will increase its line of products at an early date, and will soon manufacture a fancy building brick.. Experiments along this line have been progressing for several months with considerable satisfaction. Additional kilns are to be built, and the mines will be equipped with electrical machinery. Improved shipping and siding facilities will also be provided at an early date. The board of directors has also decided that a system of awards will be in vogue hereafter ,and any employe who invents any improvement in machinery or creates a new manufacturing system for the betterment of the business will be well taken care of.

Officers of the Clymer company have been elected as follows: President, John S. Fisher; vice-president, Henety Hall; secretary and general manager, E. W. Lenkard; treasurer, R. M. Wilson.

# SEWER PIPE NEWS

## SEWERAGE IN AMERICAN CITIES.

Since this country has had such an awakening on sanitation, there has been wide-spread action taken by all live cities throughout the country toward the establishing of more thorough and complete sewerage systems.

In a recent issue of the Municipal Journal, there appeared a lengthy review of the work done along these lines in sixty of our large cities. We take pleasure in printing a portion of this article, which we believe will be of general interest to sewer pipe dealers and manufacturers.

"Of the 8,428.65 miles of sewers in the cities reporting, 6,385 are combined sewers, and the remainder are on the separate system, 1,250 being for house sewage and 331 for storm water only. Of the total amount, 5,627 miles are vitrified pipe and 1,808 are brick sewers. Of the remaining 1,000 miles nearly 500 is under the head of 'not designated,' the majority of which is probably vitrified pipe. Aside from vitrified pipe and brick, the greatest mileage among house sewers is of plain concrete built in place, while combined brick and concrete, cement pipe, reinforced concrete pipe and iron pipe each amounts to two or three miles. Among the combined sewers, cement pipe and combination brick and concrete sewers are nearly tied for third place, following which come plain concrete, reinforced concrete built in place, a combination of brick and stone, and stone sewers, in the order named. Among the storm sewers the amount of stone sewer slightly exceeds that of brick, following which come plain concrete, a combination of brick and concrete, reinforced concrete built in place, cement pipe, a combination of brick and stone and reinforced concrete pipe, in the order named.

### Sewers Built During 1910.

"During the year 1910, or the fiscal year ending during 1910, there was built in the fifty odd cities reported 421 miles of sewers. Of these about 117 miles were for house sewage only, and 286 miles were combined sewers, while only 18 miles were for surface water only. All but six of the cities have a population of more than 25,000. Had a larger percentage of small cities been included, it is probable that the proportion of house sewers to combined sewers would have been much greater, since combined sewers are not so frequently built at the present time in the small cities as is the practice in the larger ones.

"The predominance of vitrified pipe sewers in recent construction appears quite strikingly in these reports. Of the house sewers 110 miles were built of vitrified pipe, 0.1 of a mile of cement pipe, 3 miles of reinforced concrete pipe, and 1½ miles were built of brick and one mile of plain concrete, these probably being the larger sizes. Even in the combined systems more than one-half of the construction was of vitrified pipe, one-fifth was built of plain concrete and a little less of brick. Of the surface water sewers over one-half were vitrified pipe, about one-sixth were brick, and there was less than one mile each of stone, plain concrete, reinforced concrete, cement pipe and reinforced concrete pipe.

"Two cities report that all of their city area is sewered. Six cities report about three-fourths the area sewered; nine report between two-thirds and three-fourths of the area sewered; thirteen between one-half and two-thirds, eight between one-fourth and one-half, and three less than one-fourth of the area.

### House Connections.

"The majority of the cities use 6-in. house connections only, although quite a number use 4 and others report 8, 9, 10 and even 12-in. connections; although it seems probable that these largest must be for institutions or factories. One peculiarity noticed is that 5-in. connections are used by five New England cities and by only two cities outside of New England. Of 55 cities reporting the sizes used, 25 use 6-in. exclusively, and 19 others use 6-in. and other sizes as well.

"It will doubtless surprise some to learn how large a percentage of houses are not connected with the sewers, even in the largest cities. For instance, Chicago contains about 10,000 houses not connected with the sewers and Terre Haute about the same number, or more than three times as many as are connected. A great many of the cities do not report the number of houses not connected, probably because no record has ever been taken of them. An inspection of the table, however, shows that in quite a number of cities only about one-half of the houses are sewered, and only one city, Newark, N. J., reports every house connected with the sewers. Incidentally, it may be said that in the city of New York (complete reports for which do not seem to be available yet) there are a great many thousand houses for which no sewers are provided, some of these in the well-built-up sections of Brooklyn. Most of them, however, are in the outlying sections of the several boroughs other than Manhattan."

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## THINGS MOVING IN THE WEST.

We are advised that sewer work is once more a prominent feature of the clay products business in California, though the business this year is largely scattered through the country. Several large local contracts are coming out, however, bids having been received a few days ago for the main sewer in Lincoln way, San Francisco, between 40th and 49th avenues, which will come to about $130,000. Another contract, for a sewer in Mission road, was recently let at about $60,000. In Oakland, provision has been made for the construction of sewers this year in several of the districts recently annexed to that city, the amount being approximately 69 miles, for which bonds will be issued to the amount of $406,000. The city of Oakland requires house connections with the sewers to be made with at least 5-in. diameter pipe, 4-in. pipe having been formerly used in the outside sanitary districts.

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A statement made by chief engineer Calvin W. Hendrick of the sewerage commission states that 160 miles of sanitary and storm-water sewers have been laid in Baltimore, Md., during the last four years. The city points with particular pride to this municipal undertaking.

# POTTERY NEWS

## OHIO GREATEST POTTERY STATE

Pennsylvania and Ohio are the greatest clay producing states in the Union—the former in brick and tiling and the latter in pottery and electric porcelain goods.

Trenton, N. J., and East Liverpool, O., in 1909, produced 40.94 percent of all the whiteware pottery products of the United States, according to information just announced by the Department of the Interior. But, when it comes to producing semi-porcelain, C C and white granite, East Liverpool is far in the lead, with a total production of $4,578,390 when compared with a valuation of $3,539,683 which was produced in Trenton.

Some interesting food for thought is gathered in this connection, when it becomes known that the total production of pottery in the United States in 1909 was $31,753,510 and the imports were $10,607,212. This shows that the people of the United States bought ware valued at $41,656,653 in 1909.

After deducting the exports,—domestic at $863,695 and foreign $39,448, the net consumption of pottery in this country was then $40,753,510, of which the domestic production was 76.19 per cent, the highest proportion ever recorded. The previous high record being 72.91 per cent, which was attained in 1902.

There is no denying the fact that if all the pottery made in Ohio was added to the production of East Liverpool, it would far surpass Trenton in the production of pottery products.

East Liverpool, in 1909, produced stoneware and Rockingham, valued at $89,803 and Trenton none.

East Liverpool produced white ware, C C white granite, semi porcelain and semi vitreous ware valued at $4,578,390; Trenton $1,242,361.

Trenton produced china, bone china, delft and beleek ware valued at $1,082,398 and East Liverpool none.

Trenton produced sanitary ware valued at $3,944,597 and East Liverpool none.

Trenton produced electrical supplies valued at $807,491 and East Liverpool $712,461.

A miscellaneous ceramic production of ware in East Liverpool has been valued at $158,216, against a similar item in Trenton valued at $98,954.

The total production, in Trenton, of all wares, is placed at $7,175,801 or 23.11 per cent of all pottery production of the United States. East Liverpool had a production of $5,538,870.

However, Ohio is the greatest pottery producing state in the Union, with a total production of $7,228,636. New Jersey is second with a total production listed at $1,137,701. West Virginia is third with $1,612, 321, and Pennsylvania fourth with a pottery production valued at $623,544.

In compiling its list of statistics on the clay industry, the Department received reports from 497 firms, and 118 of these are in Ohio. In New Jersey, 56 firms reported; 11 in West Virginia and 35 in Pennsylvania.

New Jersey has experienced a wonderful growth in the production of sanitary ware, with valuation of $3,182,772. West Virginia holds second place in the production of this grade of ware, its production being valued at $385,000. Indiana is the third sanitary producing state with $350,000, Ohio is fourth with $233,000 and Pennsylvania fifth $175,384.

There are nine states in the Union which are producing general ware and sanitary ware on a generous scale, but the record is the same as heretofore, with one possible exception. Illinois has been added to the sanitary list.

In 1909, Pennsylvania was added to the states manufacturing electrical supplies and West Virginia was dropped out. However, during the last year the Pan Handle state has been added to this list.

Red earthenware is also gaining in consumption, and there are 29 states producing this grade. Pennsylvania is the leading red earthenware producing state, its valuation being $159,796. This was the third place state in 1908 and jumped into first position with the current report.

Ohio produced the largest amount of electric porcelain ware in 1909, its production increasing 59.48 per cent in 1909 over 1908.

There has been a decrease in the number of firms manufacturing stoneware. Only 196 firms are engaged in this business, scattered over 29 states, the last to enter the list being Wisconsin. Ohio is the leading state in the production of this ware, and the last reports show it increased its production 23.06 per cent over 1908.

In the production of china, there are only 14 firms in four states making this class of ware, there being two less firms making china now than heretofore.

With a population of 101,000,000, every person in the United States, according to these statistics, spends a little over 31 cents each for pottery.

The Diehl Pottery Co. has been incorporated at Wilmington, Del., with a capital stock of $150,000. The incorporators are F. M. Shire, M. L. Rogers and Harry W. Davis, all of Wilmington.

The Reliance Brick & Tile Co., has been incorporated at Belle Plaine, Ia., for the manufacture of sewer pipe, roofing tile, drain tile, hollow brick, pressed and common brick. The plant is now under construction, the Nelson Construction Co. of Mason City, having secured the contract. The company is capitalized at $400,000, and the organization was largely the result of the work of the Commercial Club of Belle Plaine. There will be twelve kilns and soft coal will be the fuel used. The officers are W. R. Law, president; H. E. Law, treasurer; and R. A. Law, secretary. The business men of the city recently tendered a banquet to the officials of the company and to the officials of the Chicago & Northwestern R. R. at present located at Belle Plaine.

At Mannington, W. Va., an additional kiln is also to be built this season. Bids for the construction of this addition will be opened soon. The Mannington shop is by far one of the most successful of the younger sanitary concerns in the country. Starting with a small kiln capacity it has grown steadily, and now possesses a capacity of eleven kilns—one of the largest sanitary plants in the west.

Porcelain bathtubs are being made a feature at the Tiltonville (O.) plant of the Wheeling Sanitary Manufacturing Co., and four special kilns or ovens are being added to this plant.

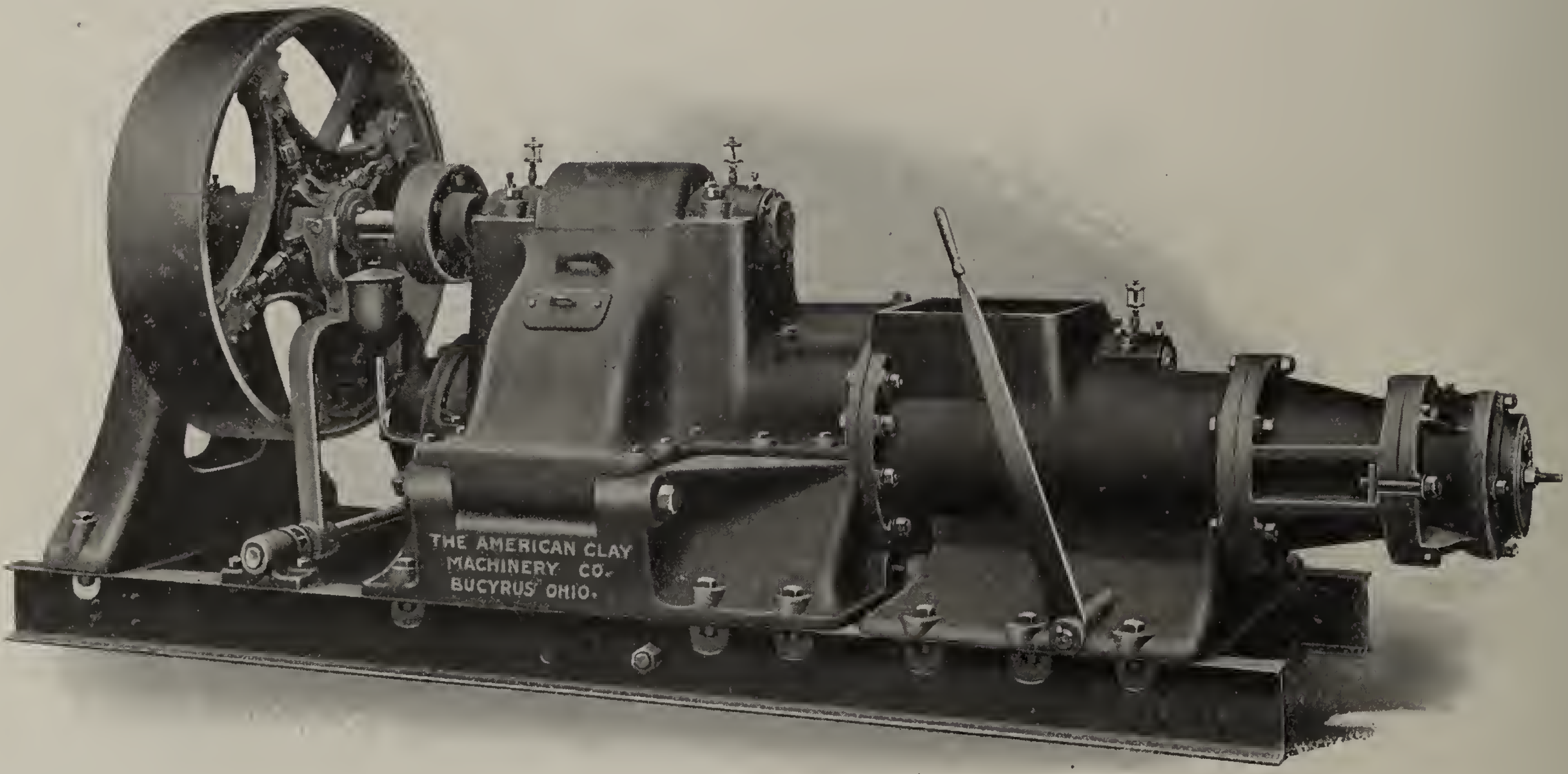
Report is current in the western district that a sanitary pottery is to be built at Sebring, O., but direct confirmation of this report is lacking at this time. It is known, however, that a sanitary plant would be welcomed at Sebring, which is rapidly growing into a pottery district, with an individuality all its own.

## RAPID TILE MAKER.

The manufacturers of drain tile, like the manufacturers of brick, find it is necessary to make a larger quantity with a minimum amount of labor in order to meet the demand and competition.

The American Clay Machinery Co., of Bucyrus, has designed the No. 218 drain tile auger machine to meet these conditions.

The up-to-date tile manufacturer, like the up-to-date brick manufacturer, recognizes that clay machinery cannot be built too good, and in order to keep up its reputation for "Built Right, Run Right" machinery, the American Company has spared no expense in designing this machine.



New Drain Tile Auger Machine, Made by American Clay Machy. Co.

The entire machine is mounted on a steel "I" beam frame, well riveted and braced, making the machine self-contained. The front which holds the die is provided with an adjustable core bracket for holding the core pin. This front is hinged at one side of the nozzle and is held by a shearing attachment on the other side, allowing the front to swing open when the pressure upon it becomes too great. The nozzle is provided with a removable corrugated liner. This nozzle is bolted to the clay cylinder. which is also provided with removable corrugated wearing liners. The clay cylinder is made in one piece and is securely bolted to the main gear frames. To the bottom of the clay cylinder is bolted a base extending its full length and the base is bolted to the steel "I" beam frame, forming a rigid support for the front end of the machine.

The hopper or feed opening of the clay cylinder is provided with a feeder, consisting of a shaft on which are mounted arms for forcing the clay down, as well as preventing the clay gathering on the side of the hopper and bridging over, causing the hopper to choke and stopping the clay from feeding into the machine. This feed attachment is driven from the auger shaft by a pair of steel cut gears. The gear frame is made in two pieces, the lower half being mounted on the "I" beam frame; the journal bearings for the auger shaft are a part of this frame. The front bearing is 15 inches, while the back bearing is 12 inches long. On each side of this frame is a heavy bolt which answers two purposes, first to take the end thrust, second to act as a hinge bolt for the upper half of the gearing frame. The auger shaft bearings are provided with caps, each held by six one-inch bolts. The frame is also designed with an oil basin, so that the master gear is always running in a bath of oil. This also oils the driving pinion. The front end of this frame extends beyond the front journal bearings to the clay cylinder, leaving a space between the two. In this space is a mud collar made in halves and clamped to the auger shaft. This is so constructed that it can be renewed and it prevents the clay from working into the front journal bearing.

The top half of the gear frame is hinged at each side of the lower frame and when in position is bolted to same. The clay cylinder is also bolted to this half of the gear frame. The journal bearings of the driving shaft form a part of this upper gear frame. The caps for the driving shaft journal bearings are joined together. The part which connects the caps forms a cover for the driving pinion. By arranging the gear frame in this manner the oil bath, as well as the gearing and journal bearings, are entirely protected from the dust.

The thrust block is a hollow cylindrical cover bolted to the upper and lower gear frames, enclosing the two oil reservoirs and thrust discs. The back chill disc is self adjusting and through the center is an oil hole so that the thrust plates are oiled from the center, at the same time the discs run in the bath of oil.

It will be noticed that in designing the No. 218 Auger Machine the American Company has followed modern designing by distributing the metal above the thrust lines of the auger shaft, making what is known as a straight line machine. This is one of the distinctive features of this machine.

Another distinctive feature in the design of the No. 218 machine is the construction of the bearings. Most of the auger clay working machines were constructed with the ordinary babbitted bearings and cap with little attention being paid to proper and continuous oiling facilities. For several years the American Company has been giving more attention to better facilities for oiling the bearings and gearings of machines so that, in designing No. 218, they bore the bearings out of solid metal, in which is inserted an iron bushing or sleeve. In this sleeve is driven a brass bearing, so designed that there is a cavity surrounding it which forms an oil reservoir. This reservoir when filled with oil will run several days without being renewed.

Another advantage in having bearings constructed in this manner is that when the brass bushing wears out it can be renewed and the machine is in perfect alignment, the same as when first built.

The thrust plates are oiled through a pipe leading from an elevated oil tank, which forces the oil between the plates.

The outer bearing and friction clutch pulley are also provided with these reservoir bushings.

The master gear and pinion are made of steel, the teeth being cut from solid metal.

The auger shaft is made of hammered steel round throughout with a spline cut in it to receive a key cast into the bore of the augers to keep them from turning. This shaft is made larger at the wheel, fit so that the auger and knives rest against a shoulder on the shaft instead of being held by set screws which prevent them from being crowded back.

This machine was designed to make four to five thousand 4-inch tile per hour with a minimum amount of power. The first two sections of the expressing augers are made double while the remaining portion forms a single continuous screw. These augers are made of manganese steel. Therefore, the blades are made thin as compared with the cast iron augers; at the same time the life of these blades is much longer and they are unbreakable.

Another distinctive feature of this machine is that the driving shaft is in the center of the machine so that at no time is the belt pulling on the caps of the bearings.

The outboard bearing is of the box pattern and extends from the driving shaft to the steel "I" beam frame to which it is bolted.

The design of this machine is a bundle of strength, symmetrical in appearance, and all connecting joints are machined and all bolt holes reinforced. This makes the best possible construction from every standpoint, and at the same time insures strength and durability.

The friction clutch pulley is 48x14 inches and should run at a speed of 200 to 300 revolutions per minute. The clutch can be operated by a lever placed close to the front end of the machine and on each side.

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## NEW CLAY FEEDER.

Arbuckle & Co. (successors to Madden & Co. and Scott Madden Iron Works Co., Rushville, Ind.) have recently gotten out a new clay feeder. This feeder is constructed somewhat differently from the others on the market, as the knives are more like granulators or pugmill knives, and therefore will do more efficient granulating and pugging. This feeder is an extra strong machine, the gears and shaft being unusually heavy and the frame very substantial.

We note also that this company is getting out a two-shaft feeder which is said to be a distinct departure from other makes of feeders.

Many of these machines are too large for small plants and cannot be shut down to a small capacity. This company has made this machine especially to take care of such cases and it can be sold very cheap, being within the reach of every clay manufacturer.

## THE NEW SHERMAN HOTEL.

The new Hotel Sherman, shown in our frontispiece, typifies the wonderful progress that has been made in model hotel construction and equipment in the last quarter century.

The resplendent three-million-dollar structure, fifteen stories high, marks the spot where formerly stood the gray walls of the old hostelry. The new building is the fifth, bearing the same name, to occupy this site, the first one having been erected in 1837, making the site one of the most historic locations of its kind on the continent. Perhaps some of the older members of the traveling public can possibly recall the period when Abraham Lincoln and Stephen Douglas were among the patrons of the little three-story brick building 80x80 ft. It takes a stretch of imagination to conceive of Lawyer Lincoln pulling a rope to jingle the bell in the office downstairs, to waken the sleepy porter into a state of cognizance of the wants of a future president of the United States.

The new hotel shows the pleasing architectural lines of the modern French renaissance. The two lower stories are faced with Bedford stone, topped with a terra cotta balcony running the full length of both frontages of the building. Rich terra cotta is also used to trim the brick work from the fourth to the eleventh story. The cap of the building design, which includes the twelfth to the fifteenth story, is a heavily decorated composition in terra cotta. The two upper stories are in a curved mansard roof, emphasized with a pavilion treatment at the corners and covered with green terra cotta glazed tile. The curved pediments of each central dormer window, in the roof pavillions, are supported by caryatides, modeled in terra cotta. The brick used for the exterior walls is a round edged, red paver, in building brick size, laid in American bond in black mortar, with raked out joints, produced by the Kushequa (Pa.) Brick Co. The brick in the courts is an impervious white brick made by the Kittanning (Pa.) Brick & Fire Clay Co. These brick are now sold exclusively so far as the Chicago market is concerned by the Thomas Moulding Co., of that city.

The number of face brick used in the building was 500,000. In addition to these were 3,500,000 common brick, 500,000 hollow brick and 140,000 impervious white brick for the light court. The walls are of hollow tile and the floors of cement, localizing any possible blaze to the room in which it occurs.

There are 548 bath rooms in the building, each being lined with white tile to a height of about 5 feet, the floors being laid in Mosaic tile. The tubs are porcelain, built into the walls and floors and equipped for silent fill and drain. The lavatories and stool tanks are of white vitreous china, the lavatory bowl having a single porcelain leg.

The architects were Holabird & Roche and the contractors were John Griffith & Son.

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## HONOR TO WHOM HONOR IS DUE.

Owing to the similarity of names we gave the wrong party credit for the terra cotta panel illustrated in our May 1st number.

The panel shown was from a terra cotta fire place made by the Washington Brick Lime & Sewer Pipe Co., of Spokane Wash., instead of the Washington Brick & Tile Co.

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The Jelks Brick Co. of Macon, Ga., has engaged for 150 feet of wharf room and a warehouse at Tampa, Fla., This company is reported to be greatly pleased with the outlook for the building material business.

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### RIGHT OFF THE WIRES.

The Doyle Brick Co. has been incorporated at Utica, N. Y., with a capital of $25,000, divided into $100 shares. The directors are H. B. Moore, C. P. Kimball and Wm. E. Lewis, of Utica.

The Mangum Pressed Brick Co. has been incorporated by D. J. Doyle, Lee Hawkins, J. Leadbetter and P. A. Janeway with a capital stock of $20,000 at Mangum, Okla.

Articles of incorporation have been filed by the Milliken (Col.) Clay Products Co. by W. R. Adams, of Greeley; W. J. Bane, of Pittsburg, and C. L. Kirk, of Denver. The concern is capitalized at $25,000.

The Utah Silica Brick & Fire Clay Co. has been organized at Salt Lake City, Utah, to engage in mining and the general manufacture of silica products. The capital stock is $500,000. J. L. Shark is president of the company; L. R. Neel, secretary; H. B. Cole, treasurer, and H. K. Masters, vice-president.

Mr. Leahy, manager of the East Windsor Hill brick yard at Hartford, Conn., has installed another machine for making brick, making the capacity of the plant 100,000 brick daily. Other improvements are contemplated which will make the plant one of the largest in the Connecticut Valley.

The Bay State Brick & Stone Co., Springfield, Mass., and New York, has been organized with a capital of $75,000 by Frank J. Sulloway and Alex. G. Grant.

The Madison (Wis.) Brick Co. has been incorporated with a capital of $40,000 by C. W. Dobelin, T. E. Wiedenbeck and E. J. Fraugschi.

A brick plant with a daily capacity of 40,000 brick is to be established at Lockesburg, Ark., by A. N. Davidson and T. J. Williams.

The One Hundred Per Cent Brick Co. is the title under which a company has been incorporated at Delaware, N. J. The capital stock is $5,500. The incorporators are G. G. Stigler, G. E. Hopkins and G. W. Dillman.

The plant of the Chattachoochee Brick Mfg. Co., at Eufaula, Ala., was visited by a fire May 9th. Four kilns of brick and two box cars belonging to the Central R. R. are a portion of the loss. The machinery of the plant was not injured. The loss was $700, with $300 insurance. The company is busy rebuilding.

Proof of final payment of capital stock was filed by Prewitt Brick Mfg. Co., of Elgin, Tex. The company has been reorganized under the title of the Central Mfg. Co. with a capital of $300,000. A number of Taylor, Tex., men are interested in the company. L. Du Free Prewitt, of Elgin, is the promotor of the enterprise. Operations will soon be begun.

Fire, originating in the dry kiln, completely destroyed the plant of the West Point (Miss.) Mfg. Co., with a loss amounting to about $6,000 with no insurance.

The Marshall (Tex.) Brick Co. is ordering machinery for its new plant, the brick machine being an especially fine one with a minimum capacity of 50,000 brick a day. The company has purchased another tract of clay land near the plant, realizing that the land is cheaper now than it will ever be again. It is expected that active operations will begin about July 1st.

The El Dorado (Ill.) Brick Co. has increased its capital from $14,000 to $50,000.

T. J. Skelberg & Sons are operating the plant of the Washburn (Wis.) Brick Co. for the season. Several additions to the plant have been made extending its capacity.

Theo. T. Hay, Raleigh, N. C., is reported to have purchased the plant of the pressed brick company at that place.

The Gulf States Brick Co., of Beaumont, Tex., of which Newton R. Wilson is president and Jennings Vandevere, manager, will install machinery to manufacture hollow building tile and drain tile.

Drain tile will be made a feature by the West Salem Hollow Brick & Tile Co., which has just been formed at West Salem, Ill., with a capital stock of $50,000. Flue linings will also be made.

Inasmuch as the property of the Western Reserve Brick & Tile Co., near Warren, O., has not been working for several years, the company will soon dissolve as a corporation.

Three sites have been carefully looked over at Ashtabula, O., for the location of a modern brick plant. M. C. Frank, formerly secretary of the United Brick Co., is at the head of a movement to form a company to build the plant. Ashtabula capital is to be interested. Whether or not brick will be the only clay products made has not been announced by Mr. Frank.

John Willis, with several associates, has formed the Gravity Coal & Brick Co., of Gravity, Ky.

John B. Varelmann has just been elected president of the new Lockland Brick Co., at Lockland, O. Other officers are: Vice-president, John B. Albert; secretary, John Koehl, Jr.; treasurer, Joseph E. Smith. A new brick plant is to be built, 25 acres of land having been bought near Lockland, and orders for machinery have been let.

The Anchor Tile Co. is the name of a new Kentucky corporation which has been formed by Frank and Louise R. Braunstein, of Covington county, with a capital stock of $100,000.

A company is to be organized by H. G. Wade and associates to manufacture a fine grade of tile and pressed brick. It is planned to establish a factory in the vicinity of Los Angeles at a cost of $125,000.

The Diamond Brick & Clay Co., of Nelsonville, O., has changed its name to the Ohio Fire Proofing Co.

The Franklin Brick & Clay Co., Lewisburg, Pa., has increased its capital stock to $620,000.

James Tiffiny, of Trenton, N. J., is endeavoring to interest the Chamber of Commerce at Napa, Cal., in establishing a pottery plant there.

The plant of the U. S. Brick Corporation, Michigan City, Ind., which has been idle for some time, is about to pass into the hands of the Saginaw (Mich.) Sand Stone Brick Co., of which John L. Jackson is president.

The Burnham Pressed Brick Plant, near Milwaukee, Wis., was struck by lightning during the storm of May 10th and a loss of $10,000 was sustained in the fire which followed. The machine and boiler houses were the only portion of the plant saved.

The Omaha (Neb.) Clay Co. is doubling its kiln capacity. The improvements will cost from $9,000 to $12,000.

The plant of the Raleigh (N. C.) Pressed Brick Co. has been sold to Mr. Frank K. Ellington. The plant is located three miles from Raleigh on the Norfolk Southern Railway.

The plant of the Sumter (S. C.) Brick Works which was almost destroyed by a fire which caused a loss of $25,000 has been rebuilt and new machinery has been installed. Mr. I. A. Ryenberg, manager and principal has taken as partner Mr. J. P. Maurer, a business man of Sumter.

Work has been started on the building of the new Union Station at Tampa, Fla. The building will cost about

$310,000 and will be built of brick, furnished by the Tampa Brick & Tile Co., 800,000 brick will be needed.

## OIL DECISION BRIGHTENS EASTERN OUTLOOK.

New York, May 24.—For the first time, in practically a year, Hudson river brick manufacturers are clearing a margin on their sales, although it is a slight one. Prices now ruling in this market center at $6 for average Hudsons. There are a few selects which are selling at a shilling a thousand over this figure, but a good quality of kiln run brick can be bought, even Raritans, which are moving in tremendous quantities into Brooklyn and New Jersey, bring $5.75 to $6. Hackensacks for local trade are firm at $7 at yard.

White enamel brick are being held at the unchanged price of $60 a thousand for the American size, (8¾ x 2¼, enamel surface by 4½ in bed.) and $70 to $75 for the English, (size 9 x 3 in. enamel surface by 4½ in. bed). There prices are f.o.b. Perth Amboy. Porcelains hold their old levels of $70 and $65 for American and English sizes, respectively, at job. They are in exceptionally good demand and companies here report a more receptive market for them, not only in the city, but in the suburbs. Other clay products prices, ruling at the begining of the present season, follow:

**Hollow Wall Tile** manufacturers, East of Trenton and South of Boston, report business far more active than last year. This is doubtless due to the prevalent agitation in favor of fireproof construction. As is usual after great casualties, tests were made and many articles were written describing the splendid manner in which the terra cotta wall tile and floor arches in the Asch building checked the spread of the flames and withstood the terrific current of cold water from the high pressure service upon the red hot floors and walls. Architects have had their attention called to these facts and the result is that there has been greater call for this material in new buildings this year. Distributors say that the market is gaining strength every day and that prices are stiffening although generally holding to quoted list, f.o.b. factory Perth Amboy, which follow:

| Size | Price per block in cents. |
|---|---|
| 4x12x12 in. | 5.25 |
| 6x12x12 in. | 6.6 |
| 8x12x12 in. | 8.9 |
| 10x12x12 in. | 10.5 |
| 12x12x12 in. | 12.1 |

**Partition Blocks**, f.o.b. Perth Amboy, are unchanged over winter quotations, but the demands are such as to almost warrant higher levels. Manufacturers are getting in New York the following prices on carload lots. Concessions are made on $1,000 orders and over.

| Size | Price per block in cents. |
|---|---|
| 2x12x12 in. | 4.4 |
| 3x12x12 in. | 4.4 |
| 4x12x12 in. | 5. |
| 6x12x12 in. | 6.6 |
| 8x12x12 in. | 8.8 |

**Telephone Ducts**—Good burned clay telephone ducts are bringing 4½ to 5 cents per duct foot, but large consumers are able to get shadings on these quotations running from a half to a cent. The demand is only fair.

**Flue Lining**—Discounts from f.o.b. mill list for flue lining continues at 85 per cent, although deliveries in New York in car lots are being made as low as 78 per cent. Net prices on the mill discounts are as follows:

| | Weight. | Price per ft. |
|---|---|---|
| 4½x8½ in. | 14 | .045 |
| 4½x13 in. | 20 | .068 |
| 4½x18 in. | 40 | .15 |
| 6x12 in. | 22 | .075 |
| 7x7 in. | 15 | .063 |
| 8½x8½ in. | 18 | .068 |
| 8½x13 in. | 28 | .098 |
| 8½x18 in. | 45 | .135 |
| 12x16 in. | 45 | .15 |
| 13x13 in. | 38 | .128 |
| 13x18 in. | 57 | .18 |
| 14x16 in. | 60 | .165 |
| 16x16 in. | 65 | .24 |
| 16x20 in. | 80 | .30 |
| 20x20 in. | 75 | .30 |

**Sewer Pipe**—Following the advance of sewer pipe in this market on March 20, the new levels have been well sustained. The new lists applying to the Eastern market give 85% discount up to and including 24 inches, 76% on sizes including 27 and 30 inches and 72% on 33 and 36 inch pipe.

**Roofing Tile**—Prices are steady and continue without change. The best grade of promenade roofing tile in flat blocks for high grade roofs is being sold here at $20 a thousand for run of kiln and $30 for selects. A cheaper form of tile in the market can be bought at $10 and $12 but it is not suitable for roof gardens, etc. The foregoing prices are for 9 x 9 tile, f.o.b. Perth Amboy.

**Vitrified Tile**—Unglazed vitrified tile of the French or Spanish type is being sold here at approximately $8.50 per 100 sq. ft. of roof surface f.o.b. factory.

**Paving Brick**—The price for paving brick in this district is unchanged despite the constantly increasing demand for this material. They range from 55 to 70 cents per sq. yard at point of shipment. New York and New England territory brick is selling at $1 to $1.25 per sq. yard.

**Architectural Terra Cotta**—The prospects for 1911 proving to be the biggest year architectural terra cotta interests in this district have known is considered as not being remote. The Woolworth building, the great 56 story building that will be erected in lower Broadway, probably will take vast quantities of this material and competition is keen for the contract. While this material is only quotable for specific jobs, the day of wholesale shading and slashing is passing and the volume of prospective business is such as to warrant a firm undertone which now prevails, and a generally cheerful tone seems to be abroad.

### Demand Increasing.

Within the last fortnight the building situation in New York has undergone a distinct right-about-face. The demand for all materials has increased, the chief difference in tone being noticeable in the great number of inquiries for future deliveries.

Operations which had been slated to hold over until after the presidental election in 1912 are now going ahead. Trinity Corporation loft extensions, the Packard School, the Woolworth building, the Greeley Square Hotel, the Brownsville improvements, the Armour plant at Roosevelt, N. J., the Steel Company's warehouse extensions in Waverly, the Roeder building in Newark, the N. Y. C. Madison Avenue improvements, not to mention the great warehouse construction work, in the Greenwich section of the city, all were scheduled for postponement, but they are now either actively underway or are on the architects' boards for specification.

But the decision had another important effect upon the brick market here in the East. The proposed combination of manufacturers has had a great obstacle removed from its path by the presence of the word "unreasonable" in Justice White's decision. This is generally looked upon here as an aid to the movement and a hastening influence toward its operation.

The confidence that the decision inspired among builders has been reflected among dealers who are buying in more liberal quantities than they had been taking up to May 15. On May 22 there were only two barge loads left at dock here in New York, and up the river the total volume has been reduced in the last five months from 340,000,000 to approximately 87,000,000 unengaged brick.

### May Increase Scheduled Output.

So great has been the change in the Eastern situation that it is now probable that manufacturers will increase the outputs they planned for 1911 just before the season opened. One manufacturer said that if conditions continued to improve as they have been in the last two weeks, he will begin operations on his usual scale, and probably others are ready to follow suit.

There are, of course, several contingencies to be considered in the optimistic trend now so prevalent. One is a doubt that the present co-operative spirit, existing among manufacturers will not continue to prevail if the demand becomes too keen in this market and it is a question whether the same restraint can still be exercised among shippers after the new brick comes from the kilns. At present manufacturers are holding together rigidly to protect their prices at the selling end and, encouraged by such support, the agents have succeeded in getting the prices to a point where, for the first time in a year, the producers have been able to take a small profit. There is a danger here.

The labor element is another factor. Because many manufacturers had planned to keep their output down they did not send South for laborers this year. In consequence the labor market is light, but this is counteracted by the fact that labor is in little demand. The real danger is in the fact that the best hands will drift off to other work and leave the manufacturers high and dry, should the season develop strong in a month or two.

Workmen on the yards have been restless. There have been numerous small strikes, and the manufacturers have adopted a more or less independent attitude toward them, because they felt that they would open late and that they would work short handed.

Water supply operations are calling for vast quantities of unskilled labor and toward these the laborers are drifting. Therefore, when a strike occurred on certain Haverstraw yards last week, it was settled with a promise to give the men 1909 wages which were 10 cents higher than last year's. They were satisfied and went back to work. The strikes at date of writing are still on at Coeyman's and Glasco.

Altogether, the clay products situation in the East is much improved. There is still need for caution on the part of manufacturers in shipping brick into this market because the bears are able to carry the current quotations down to former low levels at the first sign of a departure from the present rigid attitude of producing interests.

The jury returned a verdict of $2,000 for Edward Mieske, aged 19 years, of Stockport, against the Carey Brick Co. Mieske claimed that while in the employ of the company, in May, 1910, a bucket, filled with mud, suddenly fell on him, inflicting serious injuries to his back.

A meeting of brick manufacturers of Western New York was held in Buffalo, N. Y., in April to discuss the advantages to be derived from general publicity. About twenty of the leading brick manufacturers of that locality were present, including M. E. Gregory of Corning and R. G. Eisenhart of Horseheads.

Fiske & Co. have removed their New York office to the Arena Bldg.

A two masted schooner, loaded with tile, struck a rock, near Pelham Bay, recently and sank. The crew were saved.

The Champlain Brick Co., of Mechanicville, made a record shipment early in May, consisting of fourteen car loads of brick, being the largest day's shipment in the history of the yard, amounting to almost a quarter million of brick.

It is said that a number of New York capitalists are contemplating the organization of a company for the manufacture of high grade press brick. It is said they have secured an option on a piece of land, known as the Power's farm, on Waterford road.

We are told that part of the plant of the Raritan Brick Co. has been leased for five years to Robert Higgins of Brooklyn, who will manufacture paints and colors.

## NEW ENGLAND NOTES.

Boston, Mass., May 27.—There have not been any new jobs of real importance come to light this week, but a fair average business has been done nevertheless, and the tone of the market is cheerful. The quantity of brick going into consumption is found to be considerable when the deliveries are totalled.

The brickmaking season has opened at North Haven, Conn. The Frank L. Stiles Brick Co. are now using a steam shovel.

The Mechanic Falls (Me.) Brick Co. is installing an electric motor to furnish power for its plant which the company expects to operate at its full capacity during the summer.

The Read Nichols Co. of Bath, Me., is building new kilns at its plant, which will soon be ready to begin the season's run, which will amount to about 600,000 brick.

The Getchell Brothers Brick Co. of Brewer, Me., are buying new machinery to increase the capacity of its plant, in order to meet the demand at Bangor, Me., for rebuilding the burned district there.

The demand for brick on account of the scarcity of lumber is said to have caused a revival of the brickmaking industry at Windsor, Conn.

A contract has been awarded for the erection of an industrial factory to be built of brick at Meriden, Conn.

The Springfield, Mass., Cement Block & Brick Co. has made a voluntary assignment for the benefit of its creditors.

The Brown & Best Co. of Thompsonville, Conn., are contemplating shipping their output of brick to Springfield and Holyoke by water. The rate charged by the railroad is $1.30. This company ship about 2,000,000, yearly, to nearby towns.

## OUR BUCKEYE LETTER.

Columbus, O., May 24.—There is evidence of a building boom throughout the State of Ohio, and this condition of trade is being reflected upon the building brick industry of the state.

In Cleveland, the sewer pipe interests are especally interested, for the construction of 33 sewers there at an approximate cost of $500,000. The paving of 117 streets in Cleveland will also be of vital importance to the paving brick industry, for Cleveland is known to favor brick and block whenever it is possible to do so. In all it is reliably reported that Cleveland will spend $12,820,000 in municipal work alone this season, to say nothing of the money that will be spent for building by other interests and individuals.

Reports, from all parts of the state, are to the effect that building will be done on a more extensive scale this summer then ever before, and in each of these instances, sewer pipe, building brick and paving brick manufacturers are bound to get their share of the business.

Ohio Valley sewer pipe plants are working full time, and only here and there an idle property is to be seen. When there is an idle plant, it is generally found that such plants have been idle for years and that orders have been concentrated elsewhere—perhaps in some larger and more modern plant.

Within a few weeks, it is believed that the mammoth brick plant of the Hocking Valley Products Co., will be placed in active operation, and then under the personal and active management of Daniel Reagen, a former well known brick manufacturer at Terre Haute, Ind. At a meeting of the officials of the Hocking interests recently held in New York, Mr. Reagen was selected to take charge of the brick properties of this company, and he will remove to Columbus from Terre Haute. He has just completed an inspection of all properties of the Hocking Company. Mr. Reagen was until recently president of the McCarel, Ayer & Reagen Clay Co., at Brazil, Ind. The brick plant of the Hocking Company has been overhauled, new generators and other machinery installed and will be placed in readiness to start as soon as the new company takes over the business. It is expected that the decree of sale will be asked for Tuesday in United States court and application has been made to sell the property without appraisement and without advertisement, thus saving much time and expense. It is believed that matters may be so arranged that the receivership can be lifted about July 1 and the property turned over to the reorganized company.

Stockholders and directors of the Wassall Clay Co., have issued legal notice that at a meeting of the stockholders scheduled for June 24 at the Sabina Bank at Sabina, O., steps will be taken to legally dissolve the corporation. Notice to this effect has been issued by E. A. Lewis, president of the corporation, which was chartered under Ohio laws.

F. B. Dunn, head of the Dunn Wire-Cut lug brick machine company, of Conneaut, O., has returned from Danville, Ill., where he arranged to install a wire cut lug machine in the plant of the Danville Brick Co. The Dunn Co. has also recently sold one of its machines to the Reynoldsville (Pa.) Brick & Tile Co. The popularity of these machines is steadily increasing, and they are being installed in new plants every month.

Report is to the effect that Attorney Allen B. Creighton of East Liverpool, O., is back of a movement to build a new brick plant at Hanoverton, O.

The entire plant of the Peeble Brick Co., at Portsmouth, O., is working to capacity, with the order files well filled.

With sufficient orders on hand to keep in active operation throughout the remainder of the year, the plant of the Diehl Brick & Tile Co., has started in full at Defiance, O.

The Lisbon (O.) plant of the American Sewer Pipe Co. has closed down for an indefinite period, it is said. The property has not been on the real active list for several years. The plant of this company at Walker, just south of East Liverpool, O., is also inactive, and no word is announced from the general offices at Akron, when this property will be placed in operation.

A large sanitary trunk sewer is also to be built in East Liverpool, this summer, and the pipe will likely be sold by Ohio Valley concerns.

Additional brick making machinery is being installed in the plant of the Champion Brick Co., at Wellsville, O. A gray building brick is made there, the clay being known as the Kittanning vein, and a variety of shades are also being shown. The company is making shipments direct from the kilns, so great is the demand for the product.

At Portsmouth, the plant of the Heinisch-King Brick Co. is being worked to capacity—about 20,000 brick per day. The firm is rushed making deliveries on new business.

J. W. Beerline and sons Lloyd and Ralph have recently sold their tile factory to Dr. O. H. Gibbs of Wapakoneta and they will devote their entire attention to the operation of their brick plant in North Lima. The company has recently received an order for 500,000 brick for use in the construction of the new State Hospital which is being built just north of Lima.

B. F. Cotter, president of the Coshocton Brick Co., has ordered plans drawn for the erection of a 12-room brick residence in Coshocton.

The Dayton Brick Co., has transferred to Samuel B. Dover, its president, 18 acres of the company's property on the Beavertown Pike.

F. W. Van Fleet, who has been operating a tile factory at Mt. Blanchard, near Findlay, will remove to Forest, O., where an attractive proposition was made him to remove his plant.

It has just become known from the geological reports that in 1909, Pennsylvania produced and sold 872,000,000 brick for $5,607,490 while Ohio produced 420,999,000 common brick valued at $2,429,879. So much for the common brick.

In the production of face or front brick, Pennsylvania and Ohio also lead, Pennsylvania first with a production of 194,695,000 which were sold for $2.111,556, or an average cost per thousand of $10.85. Ohio produced 130,684,000 face or front brick valued at $1,383,787 or at an average cost of $10.67 per thousand.

Pennsylvania leads in the production of fire brick, having produced in 1909 over 417,836,000 valued at $8,107,807 or an average cost of $19.40 per thousand. Ohio produced 103,148,000 fire brick valued at $1,730,401, an average of $16.78 per thousand. In this term, Pennsylvania produced $19,403,944 in brick and tile products and Ohio came second with a valuation of $16,929,885.

The total valuation of these products in West Virginia totaled only $1,159,627, making it the 25th state in rank.

## THE TWIN CITIES AND THE NORTHWEST.

St. Paul, Minn., May 28.—The Spring season is opening up for the various yards of the Northwest, but none of them are being crowded, especially for new brick, as the stocks carried over were ample to meet the needs of the season so far. There is a growing demand for brick in different directions, but notwithstanding this, the competition of other materials has cut in sharply. Reinforced concrete construction has cut down the use of common brick sharply, while reinforced concrete sewers have cut down the demand for sewer brick. Creosoted wood block paving has reduced the amount of brick paving sharply. Of the new paving projected for the opening season, creosoted wood block, various forms of macadam and a little granite block exceed the brick area planned.

But the good work of the National Association of Brick Manufacturers and the Building Brick Association of America, have done some good already in their publicity on behalf of brick houses, and the building reports of the season show a greater number of brick dwellings being planned than for years. It may be wholly coincidental, but at the same time cement block houses are almost a rarity and the number of such structures announced nowadays is very few. They have been their own cause of defeat, as there have been so many unsatisfactory structures.

This month sees about all the yards in the Northwest getting ready to start active work—at least all the yards which will begin actively. There will be a number of yards which will not start work until the middle of the season, having carried over a fair quantity, and seeing no immediate rush for more. At the same time about three-quarters of the yards will start at once, though some of them will not operate freely until later. In some sections there is a good demand, so that manufacturers are seeing the necessity of an early start, while in others they doubt if they need to start for a month.

The weather has been quite favorable during the month, there being no frosts of any consequence, and in much of the Northwest none at all to make trouble to those yards which made an early start. This is quite different from a year ago, when several frosts occurred in May, and a number of yards had a large number of green brick ruined.

Carpenters in Minneapolis and St. Paul went on strike May 1 to secure a minimum wage scale of fifty cents per hour, a raise from the old scale of forty-five cents. The master builders refused it, and the contest is on. Two large concerns in Minneapolis have yielded and one in St. Paul, but the bulk of the contractors are standing firm and are importing carpenters from outside. This strike has its effect upon the sale and demand for brick, since it is hanging up the progress on a number of jobs which require brick.

C. W. Sheriff, manager of the Luverne Pressed Brick Co., at Luverne, Minn., started his plant in operation the first of the month and expects to keep it running steadily.

J. W. L. Corning, of the Chaska Brick & Tile Co., St. Paul, received the contract for the common brick to be used in the new twelve-story Lowry building which is under construction in St. Paul. Joseph Kuhn has resumed operating his yard at Brickton, Minn., this season. The plant has been operated under a lease for the past four years by Rufus P. Morton.

The Ludowici-Celadon Co. has opened a Minneapolis sales office in charge of John B. Cabanis, at 323 Plymouth building.

Charles Guenser, from Chaska, Minn., has recently taken charge of the brick yard at Bowlus, Minn.

Joseph Albrecht, of Belle Plaine, Minn., has started his yard in operation for the season.

One of the acts of the late legislature may have a bearing upon brick manufacturers in the event of their having a fatal accident in their plants. A bill was forced through the legislature at the last minute and in an irregular manner, which raised the limit of liability on a death by accident $7,500 in place of $5,000 which has been the figure. It is claimed that the law is illegal from the irregular way that it was passed, but this will be a matter for the courts to decide.

The Johnson, Jackson & Corning Co., of Minneapolis and St. Paul, has recently issued an artistic pamphlet descriptive of brick mantels, and another calling attention to a wide variety of clay products.

The supply of common brick in the vicinity of Mankato, Minn., has been rather short, and the yards there were being urged to hurry up their work in order to relieve the stringency.

The Fort Pierre Brick Co., of Fort Pierre, S. D., has been making experiments with the use of crude oil for fuel, in place of coal. The fuel problem is one which is making much trouble in the Northwest, where formerly it was always wood that was used. But wood has become scarce and expensive, while prices on brick have gone down.

The building inspector of the city of Minneapolis, is pushing an extension of the fire limits to include quite an area on the East Side of the river. The fire limits on the West Side, have recently been extended. The effect of this change is seen in several rebuilding jobs after fires. The old structures cannot be rebuilt of the same construction, but must be of fireproof construction. This will help the brick and clay trade materially, although the new business thus produced must be divided with other materials.

One of the signs of prosperity in the Twin Cities is the use of auto trucks for the delivery of brick and other building materials.

The Minneapolis Builders' Exchange decided at the regular May meeting, to establish a bureau of employment, through which members might secure workmen in the different crafts, and thereby relieve the employers of having to apply to the unions and union officials when in need of men. The plan bids fair to make the exchange headquarters for workmen of all trades.

## CHICAGO OUTLOOK.

Chicago, May 26.—There is ample work to do here and the demand for brick is good, as far as it goes, but at the present writing there is little headway to be made on account of the brickmakers' and teamsters' strikes. For the past month there has been no brick manufactured in or about Chicago, and there have been no deliveries made on account of the sympathetic strike of the teamsters, who refuse to deliver brick made here or elsewhere. The matter has become so serious as regards the building situation that some action will be necessary soon.

It seems a strange situation when a few thousand men can tie up over $40,000,000 worth of construction work, but that is the case here at this time. The contractors are becoming restive under the conditions, and it seems that there should be an agreement of some kind made before long. While there have been several meetings, nothing has come of them, and there does not appear now to be any definite date as to when the matter will be brought to a close.

The brick manufacturers say that they have nothing to give out with reference to the situation, and that there have been no new developments since the men walked out. They are simply waiting the outcome like other material men, all of whom have been tied up in this city. The other labor troubles have been settled to some extent, and it would seem that there should soon be a complete restoration of conditions in all other lines as affecting the building situation. Unless some action is soon taken it will seriously interfere with the summer and fall business. Outside of the city there has been a very fair demand, and the prospects have been up to the expectations. But there has been too little activity here to suit all parties concerned.

An idea of the amount of building work now under way and in contemplation here may be gained from the following figures. Much of this work has been tied up for the reason that labor troubles have done so much to hold back an otherwise prosperous season.

The buildings now under way and their estimated cost are as follows:

| | |
|---|---|
| Continental-Commercial National bank | $ 7,000,000 |
| Rothschild & Co.'s new building | 5,000,000 |
| Insurance Exchange | 4,000,000 |
| Otis building, La Salle and Madison | 2,000,000 |
| North American building, State and Monroe streets | 1,800,000 |
| Mallers building, Wabash avenue and Madison street | 1,500,000 |
| Addition to McCormick building, Michigan avenue and Van Buren street | 1,500,000 |
| C. C. Heisen building, Dearborn and Harrison streets | 2,000,000 |
| Mandel Bros.' building, State and Madison streets | 1,500,000 |
| Chicago Telephone building | 1,000,000 |
| Hearst building | 1,000,000 |
| Burlington office building, Jackson and Clinton streets | 1,200,000 |
| Monroe building, Michigan avenue and Monroe street | 1,500,000 |
| Buck & Rayner building, State and Adams streets | 1,000,000 |
| City Hall Square Theater and Office, Clark street | 1,500,000 |
| Hamilton Club, Dearborn street | 500,000 |
| Blakeley Printing Company building | 325,000 |
| Mayer building, Wabash avenue and Adams street | 200,000 |
| Addition to Ashland block | 1,000,000 |
| Eitel Bros.' building, La Salle and Randolph streets | 1,500,000 |
| Hannah & Hogg, Randolph street | 250,000 |
| Marshall Field estate ten story addition to McNeill building | 250,000 |
| Total | $34,925,000 |

This is a remarkable showing, and if to this were added the buildings completed during the early part of the year the total would be carried over $40,000,000.

In addition to the above there are a large number of high grade apartments, factory buildings and smaller structures included in the list. This ordinarily would make the situation most gratifying, and the pity is that there has to be a continued delay under such otherwise favorable conditions.

All lines of clay products, with the exception of the conduit industry, have been affected by the strikes, and there has been a decrease not only in the output, but in the sales as well. Everyone still continues in a hopeful mood, but that is the best that can be said at this time. There has been no advance in prices, the possible exception to this being the price of the smaller sizes of sewer pipe, and this has been a little advanced of late, with a fair demand.

Some sharp complaints have been made about the new creosoted block streets in the down town district with the advent of warm weather. The tar on the surface of the blocks has been so soft as to stick to the feet of pedestrians so that the damage to rugs and carpets has been very noticeable, and the contractors were asked to remedy the trouble. The only thing that was possible to do was to place sand on the block.

The Illinois Brick Co., says that there has been no change in the situation with them in the past month. Mr. Vernoy stated that he had no report to make with reference to the labor trouble, and that he was not in a position to say when the matter might be brought to a close. This company is simply waiting the outcome of events.

The Clay Product Co. finds the demand for conduit to be good. Mr. Darling in stating the situation with his concern said that there had been no reason in the world to complain. The plant had been in operation all winter and spring, and the demand for conduit had continued to be satisfactory in every way. He was inclined to see only a continued state of activity for the future. This company has lately been awarded some nice contracts for conduit.

The S. S. Kimbell Brick Co., like the other face brick concerns, is simply waiting and hoping that there will soon be a settlement of differences between the brick manufacturers and their men. As the situation is now there can be little activity in face brick lines and the whole aspect is unfavorable. Some changes are being made in the show room of this company.

The Carey Brick Co. is entertaining hopes for an early settlement of the strike difficulties but no assurance is given of when this may come about. The plant is tied up, until the matter is settled.

The Midland Terra Cotta Co. is out with its announcement and is now operating its new plant for the manufacture of architectural terra cotta. While the prospects are good, there have been some drawbacks on account of the labor matters and there has been only a fair demand as yet.

The Wm. E. Dee Clay Product Co. reports that there has been a lack of demand for nearly all lines of clay products, on account of the strikes. Outside of the city conditions have been better, but there has been a slowing down of the demand in these sections. In Chicago there has been little to make the business promising. Sewer pipe is in fair demand, with a slight advance in the price of the smaller sizes.

The Bonner and Marshall Co. is affected like the other face brick people in this city. The reports are that while there would be a good demand for face brick, the labor situation has been a factor that has held things up.

The Chicago Hydraulic Brick Co. through Varney, the local manager, finds the brick situation lifeless. Mr. Varney said that there was nothing to say now. The strikes had been a factor that had caused considerable trouble, and had succeeded in holding up all business in this section of any consequence. He was confident that when a settlement was effected the demand would soon become active again.

## CONDITIONS IN TEXAS.

Austin, Texas, May 25.—Business conditions in Texas have not been as good as might have been expected in view of the fact that an exceptionally good crop season is in prospect. It is stated that during the last few weeks there has been a falling off in activities in building trades of all kinds. This is regarded, however, as but a temporary depression and everything points to an extraordinarily good year for the brick industry, as well as all

(Continued on p. 44, in advertising section.)

# Sand-Lime Brick Machinery

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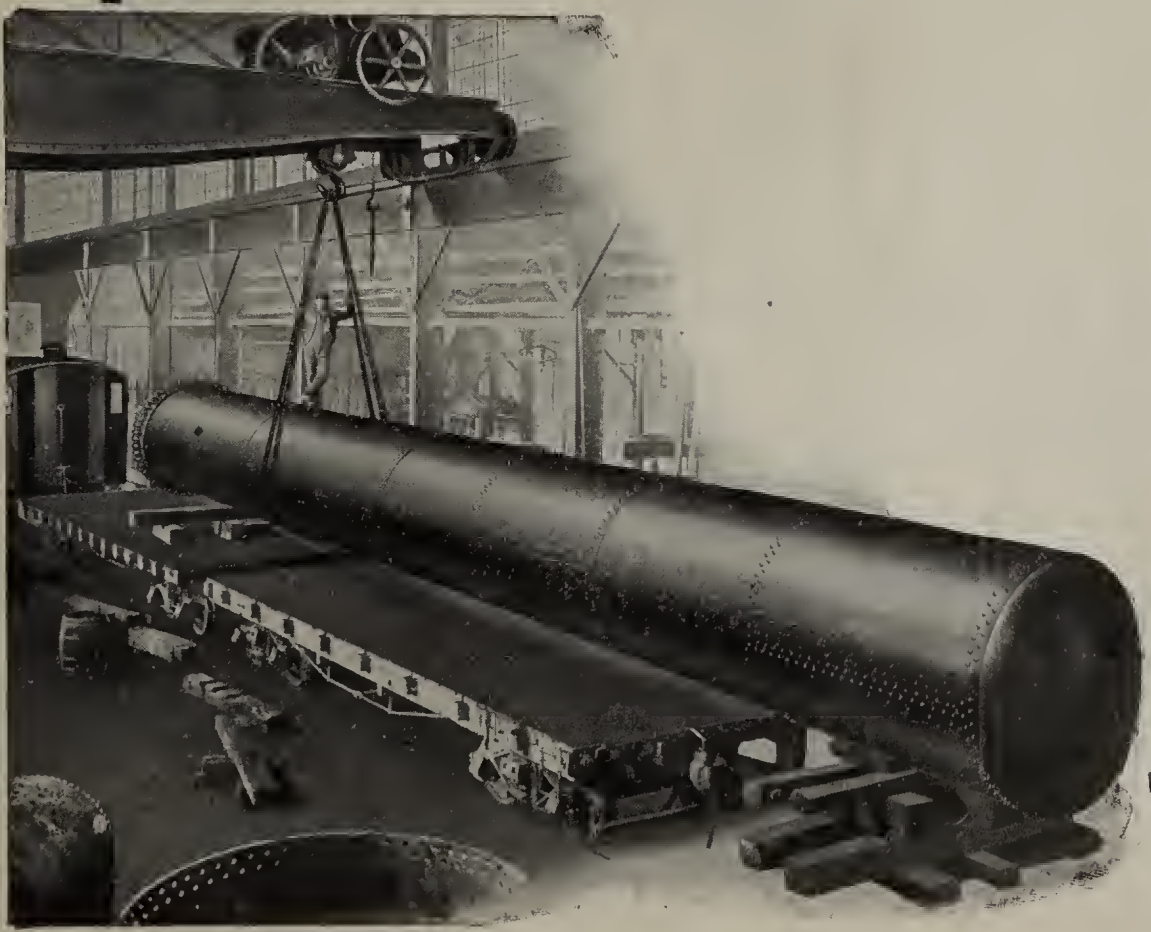

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**AMERICAN CLAY MACHINERY CO.**

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other lines of business. In explanation of the temporary slackening of building operations in the different cities and towns, it is stated that investments of this character were held up pending a more definite outlook on the money situation, not only in Texas, but in the financial centers of the country. The conclusion should not be reached, however, from this statement of conditions in Texas that building operations are at a standstill. On the contrary there is perhaps more being done now, in Texas, in the way of erecting new structures and making substantial improvements than there ever has been at this season of the year. But even this falls short of what was anticipated at the beginning of the year and is spoken of as a temporary lull in construction work. Plans are going forward for the erection of a great many large buildings in all of the more important cities and towns. It is stated that in Houston there has been a famine of brick, due to the unusual amount of construction work that is in progress there. All the brick manufacturers in that section, as well as the dealers in outside material have been straining every point to supply the demand, but they have been unequal to the task.

One new and noticeable feature of building operations in the larger towns of Texas is the wonderful increase in the use of brick for residence construction. Formerly, and not so very many years ago, comparatively few brick residences were to be seen. Now practically all of the larger and more modern types of homes are built of brick. This of itself has caused an enormous increase in the demand for this material.

The adoption of the so-called skyscraper type of business and office buildings is also another reason for the increased use of brick in such cities as San Antonio, Houston, Dallas, Waco, Fort Worth, El Paso and Austin.

In the lower valley of the Rio Grande the erection of several new sugar mills is requiring a considerable number of brick. Lon. C. Hill, in addition to his regular brick works at Harlingen, has established kilns for burning 250,000 brick for use in erecting his sugar mill. At San Benito and other towns of the Harlingen section where other mills are to be erected brick is also being made for the purpose.

The Kansas City, Mexico and Orient Railroad company recently had an investigation made of the clay resources along the route of its new road in western Texas between San Angelo and Fort Stockton, about 150 miles. The work was performed by Dr. William B. Phillips of the geological department of the state university of Texas. Valuable beds of clay, suitable for brick and other articles, were found in different localities. The object of this research was to obtain reliable data, which would be a guide to any prospective investor who might contemplate locating brick works or other clay manufacturing plants upon the new road.

At Pawhuska, Okla., one brick plant is now in operation making 300,000 brick per day, which are said to be as good as any brick produced in the gas belt. Another plant is being installed with a capacity of 1,000,000 a day. A tile and pottery concern is also contemplating the establishment of a plant at that place.

Light brown terra cotta is being used in connection with brick in the construction of the new Union Pacific headquarters at Omaha, Neb.

The citizens of Leroy, Kan., are much interested in the report of the incorporation of the Sherbrooke Vitrified Brick Co. of Augusta, Me., with $600,000 capital by Sanford L. Fogg of Bath, Me.; E. M. Leavitt of Winthrop and others of Augusta, Me. A committee representing the directors has been at Leroy looking over the situation with reference to reopening the plant. It is proposed to secure gas for fuel, of which there is an abundance to be had. It is hoped this industrial institution will soon be put in operation. J. C. Morgan an experienced brick maker has been engaged as manager.

W. G. Saylor and J. E. Rhodes, managers of the Burlington Junction (Mo.) Brick & Tile Co. have been getting their yards in shape for the summer's run. Improvements are to be added and the capacity increased.

The members of Greater Leavenworth, (Kan.), Club say they think a brick plant in Leavenworth would prove a paying investment and say 10,000,000 brick could be sold there each year and it would take 50,000 tons of coal to burn them, making work for miners as well as other laborers.

The representatives of sixteen prominent builders' associations from different towns of Texas held a meeting here and organized what is known as the Master Builders' Association of Texas. It was decided that the headquarters of the new organization shall be in San Antnoio for the present.

The following officers were elected for the ensuing term:

W. N. Hagey, San Antonio, president; R. O. Langworthy, San Antonio, State secretary; A. Babin, Beaumont, first vice-president; W. McDaniel, Port Arthur, second vice-president; E. B. Lovin, San Antonio, treasurer.

This organization represents a total membership of 250, composed of the sixteen locals situated in the various larger cities of the State.

Owing to the death of one of the owners of a brick yard at Bristol, Tenn., there is said to be an opening for the establishment of a brick plant there.

The Central City, Ky., Brick & Tile Co. has elected the following officers for the year: Prof. B. C. Hagerman of Campbell-Hagerman college, president; Judge Walton, vice-president and E. S. Kinkead secretary. The company has decided to add a number of improvements to its plant, which will be run to its full capacity during the summer

The firm of Delotte & LeGrange of Lake Charles, La., recently sold one order of 1,000,000 brick, which is considered quite a large sale, these days.

The Niemeyer Brick & Tile Co. has been incorporated at New Memphis, Ill. For the purpose of engaging in the clay manufacturing business.

The Nicholson Brick Co. is reported to contemplate the establishment of a brick plant in Pawhuska, Okla.

The Columbus Tile & Brick Co. has purchased the brick and drain tile manufacturing plant of the Columbus Vitrified Brick & Tile Co., in Columbus, Kan. The officers of the company are: L. J. Slease, president; George Hood, vice-president; M. A. Householder, treasurer, and C. F. Baldwin, secretary.

The Rector Tile & Brick Co. has been incorporated in Rector, Ark., with a capital of $5,000.

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ATLAS ENGINE WORKS
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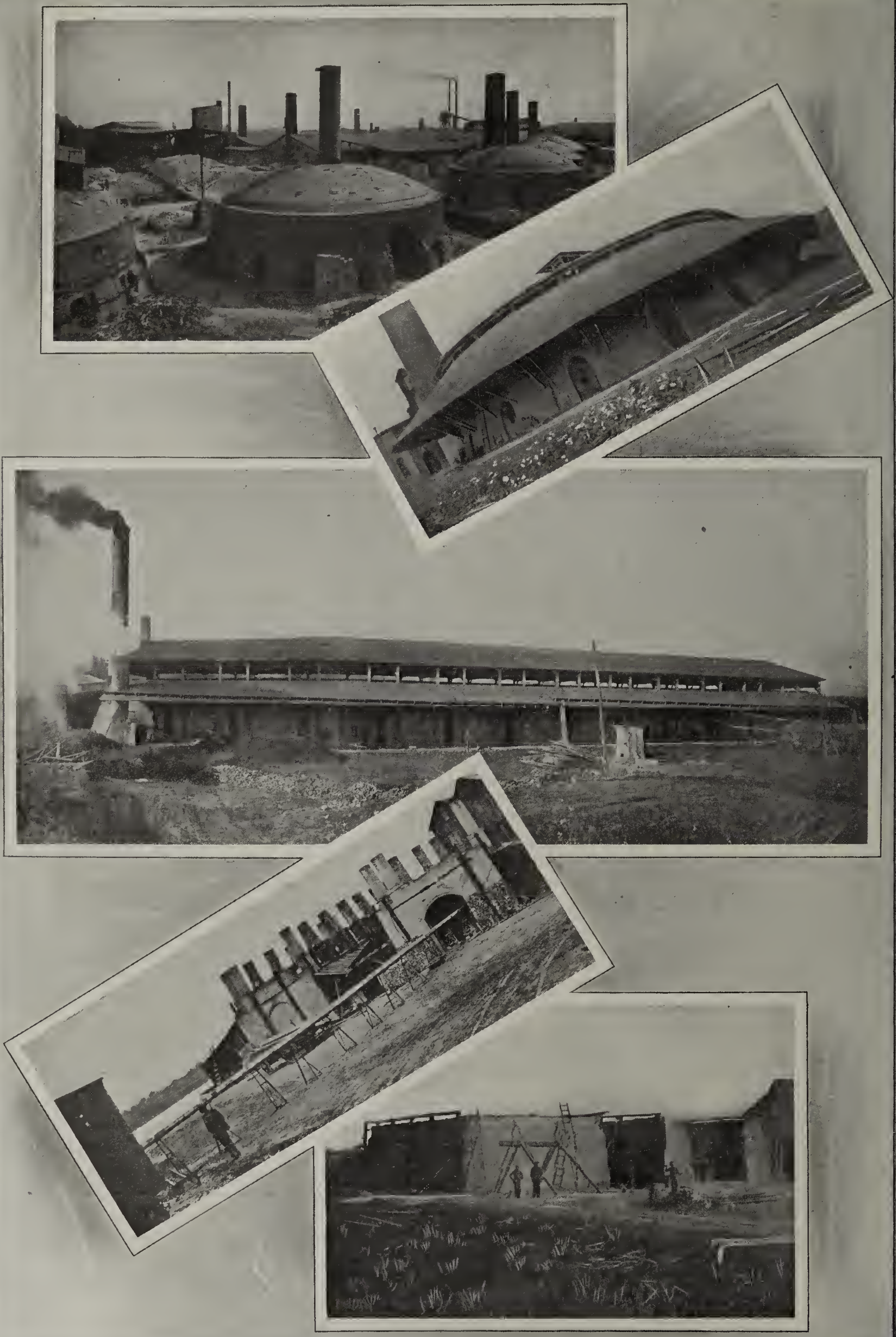


MODERN TYPES OF KILN CONSTRUCTION

First illustration shows the common round down draft type, the second shows the round continuous model, the center is a producer gas-fired continuous kiln, below is the rectangular down draft and last is the scove or up draft type

VOL. XXXVIII—No. 12

BRICK
AND CLAY RECORD

JUNE 15, 1911

# THE TUNNEL KILN

## Use of the Tunnel Kiln Dates from 1751.—Many Modifications and Improvements Have Materially Lessened the Disadvantages of this Interesting Type of Kiln.

By A. V. Bleininger, Director of Ceramic Department, State University, Urbana, Ill

In making a study of this most attractive subject one experiences a distinct feeling of surprise in finding not only, that the idea of this type of kiln dates back to such an early time, but that a great number of modifications have been proposed and patented, during the intervening years.

The tunnel kiln differs from the continuous kiln in that the fire is stationary, while the material to be burned moves along. In both kilns, however, the direction of the gases is horizontal. Another primary difference, between the two types of kilns, is that in the continuous system the burning chamber forms a closed ring, while the tunnel kiln consists of a long, discontinuous canal, of small cross sections.

The simplest form of this kiln would therefore be a long, small tunnel through which cars loaded with the ware to be burned are drawn at a very low speed. The fire places are located at the middle, preferably on each side, and the gases pass out towards one end, in the direction opposite to that of the cars. At the lower end, where the cars emerge, the necessary air for combustion is drawn in and is preheated by the heat of the cooling ware, and arrives at the middle of the kiln heated to redness. Fuel is supplied here, either by means of a semi-gas furnace or a gas producer, and the combustible gas is burned by means of the preheated air. The products of combustion pass on and heat up the incoming car of ware, so that the latter also arrives at the middle of the kiln brought to a red heat. The gases escape near the upper end of the kiln through ports in the sides of the tunnel into one or two stacks. The cars are of course moved mechanically, and must be under constant control.

### Many Advantages of This Kiln.

It is evident that in a kiln of this type, the moving mechanism of the cars must be distinctly separated from the burning zone by means of a tight floor, which also must be sufficiently heavy to prevent excessive conduction of heat to the iron parts of the cars. This point offers the main difficulty of the kiln construction and most of the proposed systems have failed, because they have not succeeded in attaining the necessary heat insulation. The advantages of such a kiln are so evident that they scarcely need elaboration, and it is readily understood why so many have attempted to solve this attractive problem of kiln contsruction. The advantages might be summarized as follows:

The cars may be loaded at the molding machine, run through a dryer and while still hot, into the tunnel kiln. Thus the kiln setting is eliminated.

The cars may be unloaded at any place desired and at less inconvenience to the help.

The construction of the kiln itself is simple and not expensive, owing to the small dimensions of the tunnel and the fact that a good fire brick lining is needed only near the middle of the kiln.

The destructive effect of frequent heating and cooling is avoided, since the kiln temperature is practically constant. The brick work therefore should last a long time.

The distribution of heat is not difficult, owing to the small cross section of the tunnel.

The heat regulation may be perfected to machine-like accuracy.

The saving of heat over the periodic kiln approaches that of the continuous kiln.

The manipulation of the fire, being restricted to a permanent location, may be carried on by means of labor-saving appliances and coal haulage and distribution becomes a simple problem.

The burning may be carried on with the greatest permissible rapidity.

The ware is far less subject to deformation in firing, owing to the comparatively small weight imposed upon it.

### The Disadvantages.

Expensive car construction and mechanical difficulties arising from possible overheating of the iron work, jamming of the cars or similar disturbances. Also high repair cost of these cars.

It is difficult, if not impossible, to burn heavy ware economically by this system, which objection of course would not hold for lighter ware, such as perforated brick, drain tile, building block and similar products.

Owing to the short time allowed for burning some clays, such as shales high in carbon, could probably not be burned with any kind of economy.

The short time allowed for cooling might be injurious to certain clays.

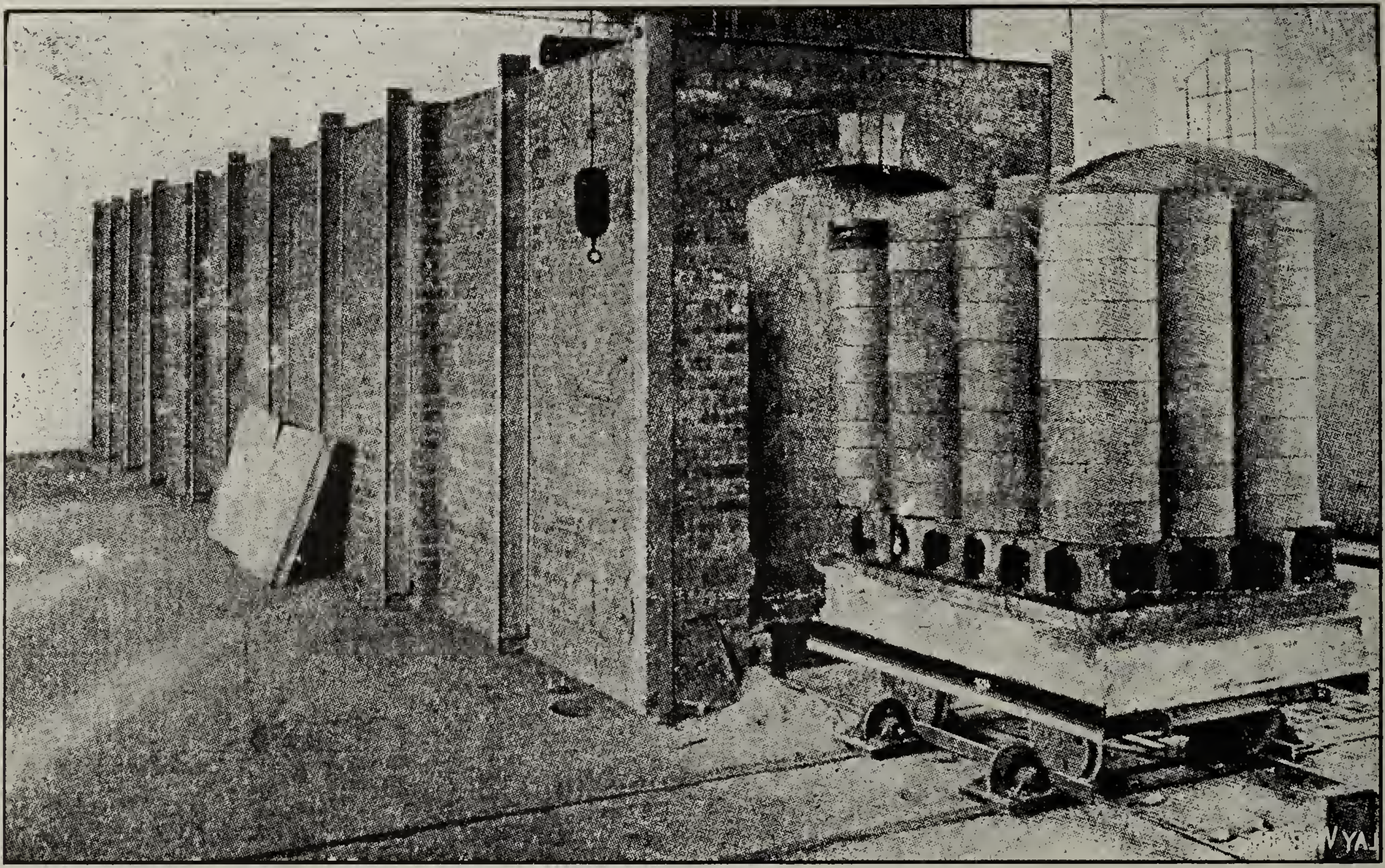
In no case could the tunnel kiln be worked without being operated in connection with a tunnel dryer.

The earliest record of a tunnel kiln was found by the writer to be a report made by Hellot to the king of France, Louis XV. (Granger, La Ceramique Industriaelle, p. 233), in which mention is made of a tunnel muffle kiln for the burning in of decorating colors on porcelain, built at Vincennes in 1751.

In 1840 a Danish patent was granted, a certain Yordt, for a tunnel kiln for general burning purposes. A Hanoverian patent was obtained by Rasch, in 1854.

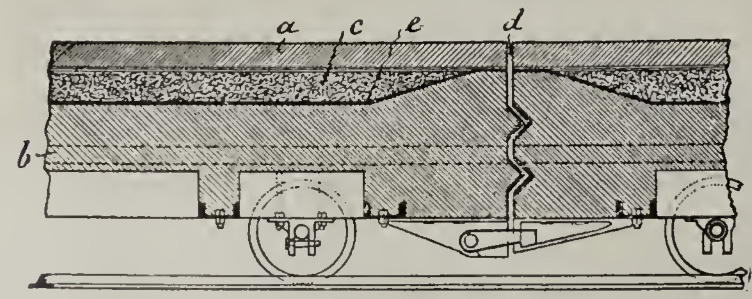
These patents were followed by other inventions due to Demimuid and Gueval, Pechine and Borrie. The kiln of the last inventor was 150 feet long and had a cross-section of about a square yard. It was intended for the burning of perforated brick.

In 1873, Bock built a tunnel kiln, in Denmark, in which for the first time the cars were connected by means of groove joints luted with clay, and were provided with sides which projected into troughs filled with sand. This kiln was patented in 1877 and some sixty kilns of this kind were constructed, of which several are still being operated.


End View of Tunnel Kiln, used at Altwasser, Germany, for Burning Porcelain.

The iron work of the cars was kept cool by means of a current of air passing beneath the burning tunnel. This flue was so large that a man could walk beneath the cars to inspect them. The cars were moved along by mechanical means.

The principal difficulty seems to have been that of water-smoking the ware properly in the short time allowed, and it must be remembered, that the brick burned in the first tunnel kilns were simply air dried as that used to be the common practice. Success, in the use of this kiln, can only be hoped for by using a tunnel dryer ahead of the kiln, so that the ware enters the latter at a temperature quite high, say at 200 degs. F. By doing this the water-smoking process may be completed properly.

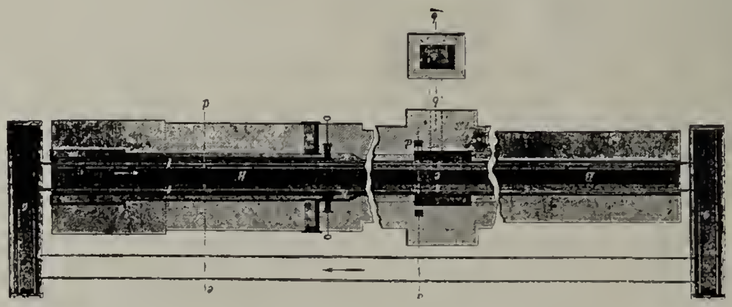


Proposed Method for Coupling Cars.

Another weak point in the first tunnel kiln was the firing, which was the same as that practiced in the continuous kiln, the fuel having been fed through holes in the crown which is not satisfactory for this kind of work. Bock is to be credited with having built the first kiln of this type which contained the elements of practical success.

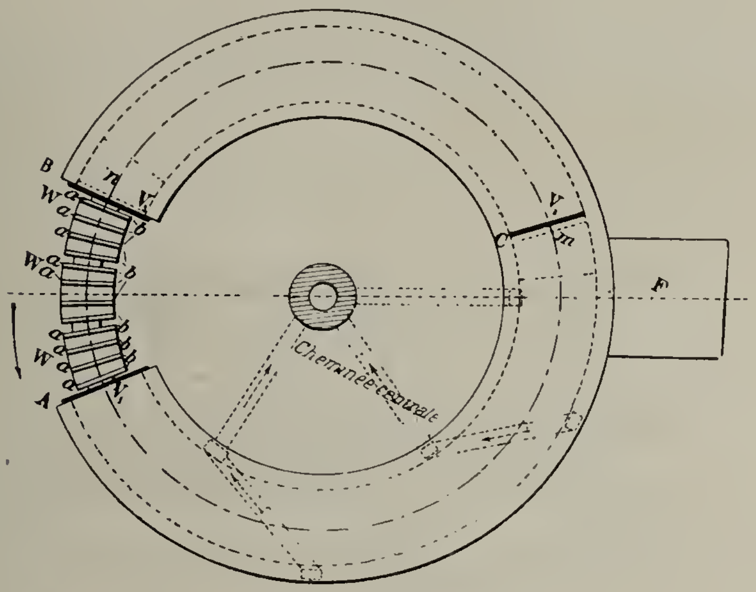
It was soon realized that gas firing offered peculiar advantages for the tunnel kiln, and for this reason the Bock kiln was soon connected with gas producers. Steinmann, Emmel and others have designed tunnel kilns along these lines. In the kiln of the latter the cooling ware is allowed to cool more slowly by passing through it only part of the air necessary for combustion, and provision is also made to carry on the water-smoking by means of combustion gases.

Villaret, in his tunnel kiln, avoids the rush of cold air into the kiln occasioned by placing a car or removing one, by the use of a movable chamber provided with double doors. The ware in this kiln is set upon fire clay slabs, which move along upon balls, made of burnt fire clay running in troughs.


Ground Plan of the Bock Gas-Fired Tunnel Kiln.

Muffle kilns of the tunnel type for the burning in of porcelain and white colors have been built and proposed in various modifications. In fact, in the Bauer kiln, Seger porcelain was burned in the short time of 45 minutes.

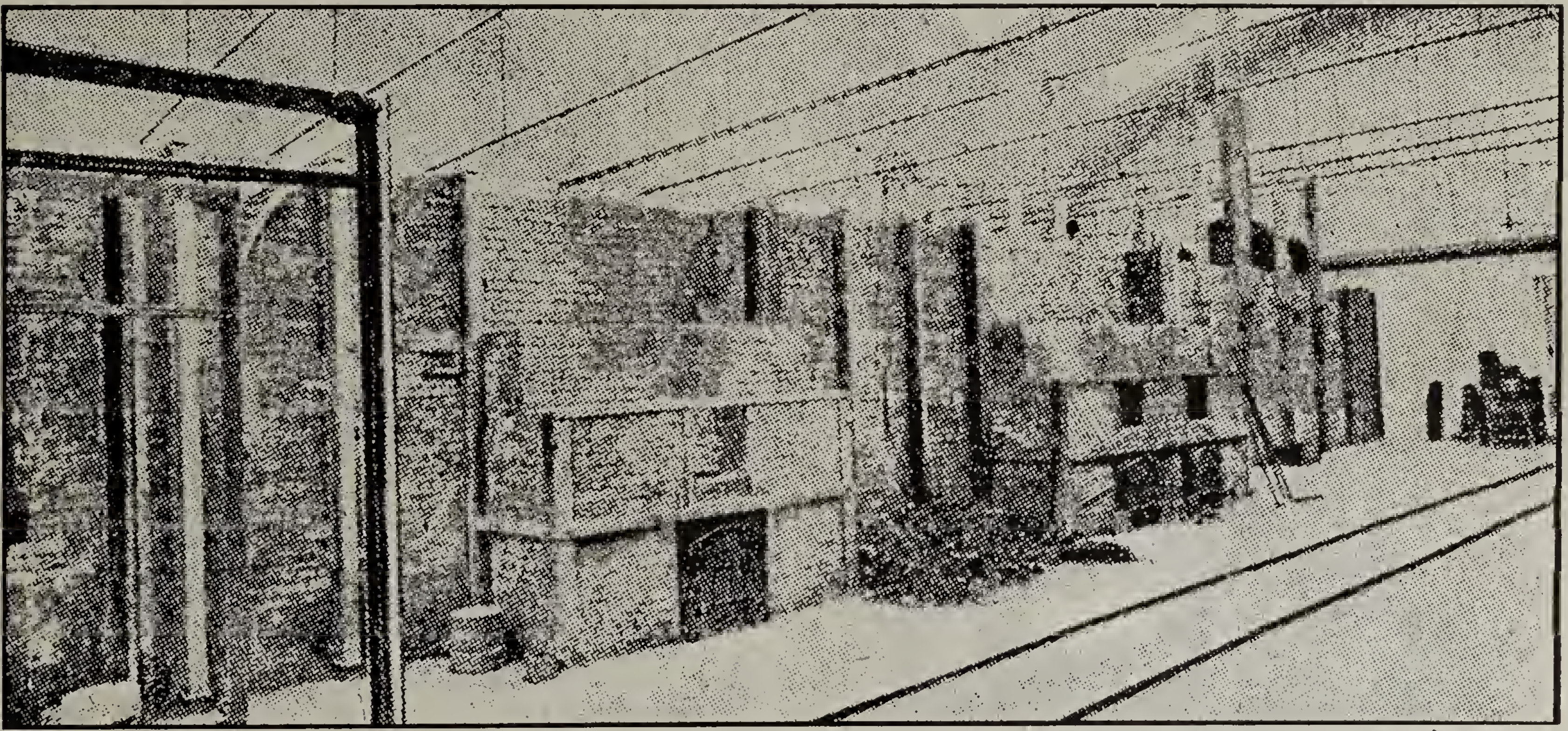
It is readily seen that with so many inventions there is no lack of curious ideas. Thus in a recent French patent it is proposed to use boats floating in a canal with sufficient depth of water, the ware being set upon a platform consisting of fire brick. In one muffle kiln, the tunnel is circular, the stack being located at the center of the circle.



Circular Tunnel Kiln.

Of late, the tunnel kiln has received a strong impetus by the construction of the Faugeron kiln for the burning of porcelain to a temperature as high as cone 14. The boldness in carrying the temperature to a point, at which most of our red clays would fuse down to a slag, is remarkable and is a hint to the other clay industries to bestir themselves in again taking up this fascinating problem.

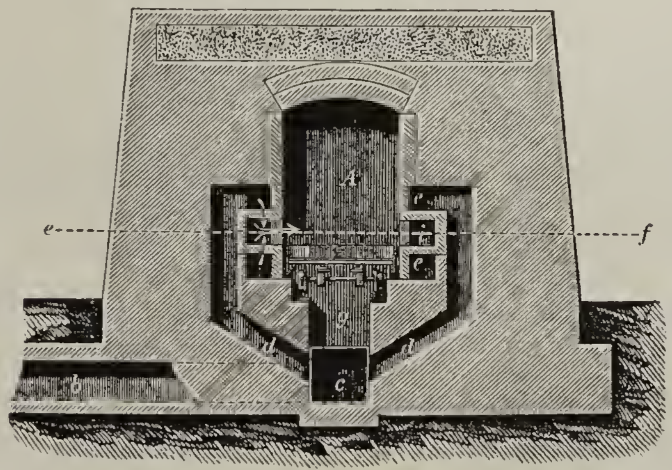
The Faugeron tunnel kiln is divided into chambers by providing the cars with partition walls and contracting the tunnel at certain intervals so that when one of the partition walls passes the narrowed place the tunnel is practically closed. The contractions in the crown are located at a distance of four car lengths from each other. Connection is established between the chambers by means of flues in the wall above the platform of the cars. While the one partition wall of a car is at one of the contracted places of the tunnel, the other wall has functions similar to a bag wall.



Side View of Altwasser (Germany) Tunnel Kiln for Burning Porcelain, Showing Furnaces.

In the diagram illustrating thte Faugeron kiln, it is seen that at E the gases meet with the closed partition, are compelled to turn out through the port a, reenter at e and are again forced out upon meeting the next partition. Upon removing one car, the whole row moves up one car length and another partition takes its place at E. The saggers are placed upon a kind of grating and the gases pass through the latter before escaping into the flue. This arrangement also contributes towards more uniform distribution of the heat. The air proceeds through the cooling ware in identically the same fashion. Such kilns are now being operated successfully in a number of places as at Mettlach, Saargemuend and others.

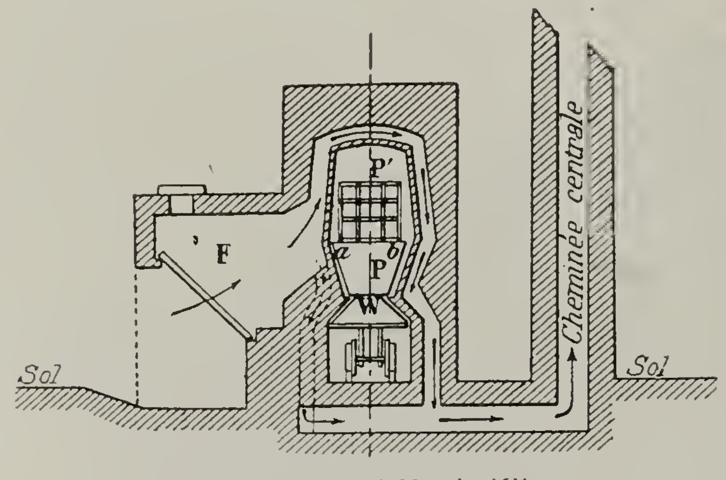
At Altwasser, Germany, a similar kiln has been operated successfully for some time, both for biscuit and glost burning. No trouble whatever was experienced in the biscuit burn and a tunnel 135 feet long does this work satisfactorily. Some difficulty was met in the glost burning, where reducing conditions must prevail during the final vitrification stage.



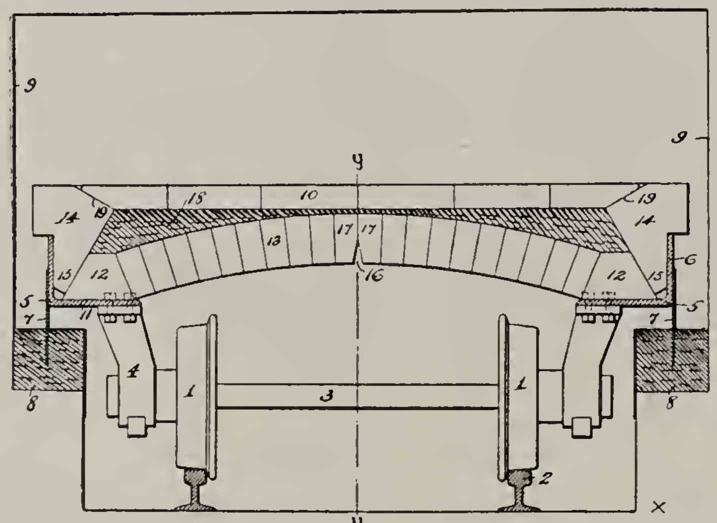
Cross Section of First Type of Tunnel Kiln.

The builder of this kiln, Mr. George Faist, also conducts the air necessary for combustion, not direct through the cooling ware, but through flues within the wall. Owing to the high temperature of the kiln, cone 14, and the continuous firing, the outside of the crown is cooled by means of cold air, which is heated so high that it is used for generating steam in a boiler. As has been said, this kiln operates very successfully. The temperature is practically constant, the ware is uniformly good and the coal consumption has been cut in two.

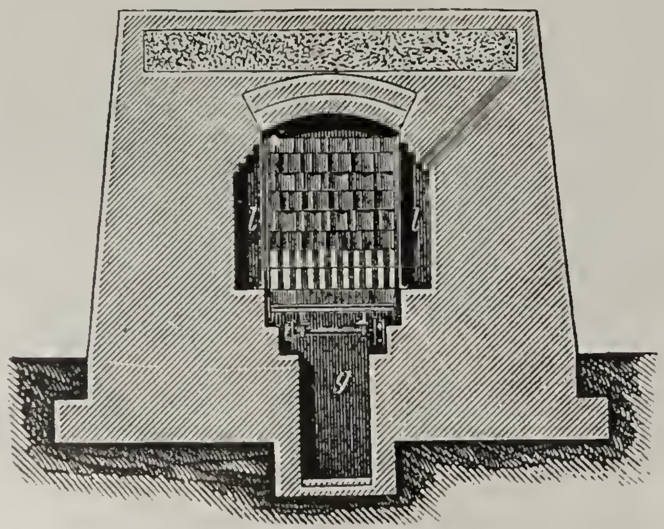
In the United States, a number of tunnel kiln patents have been granted, the best known being those of Anderson, Carter and the Columbian kilns. The latter kiln differed in principle from the most common tunnel kiln in that it forms a round burning chamber, in which the kiln floor rotates about a center. The difficulties encountered in this construction are evident, if one considers the fact that the ware located at various radii travels with different velocities. If a kiln of 10-foot radius makes one complete revolution in 24 hours, the outside of the floor would travel at the rate of 2.6 ft.. per hour and the middle at 1.3 ft. Whether any of these kilns are now in operation the writer is unable to say.



Proposed Tunnel Muffle Kiln.



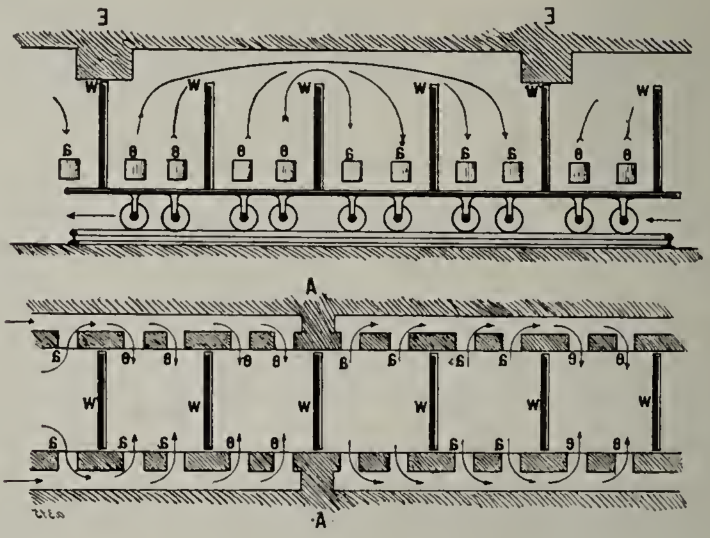
Arch Construction for Taking Up Expansion Due to Heat.



Cross Section of Bock Brick Kiln, Showing Large Flue Beneath the Firing Tunnel.

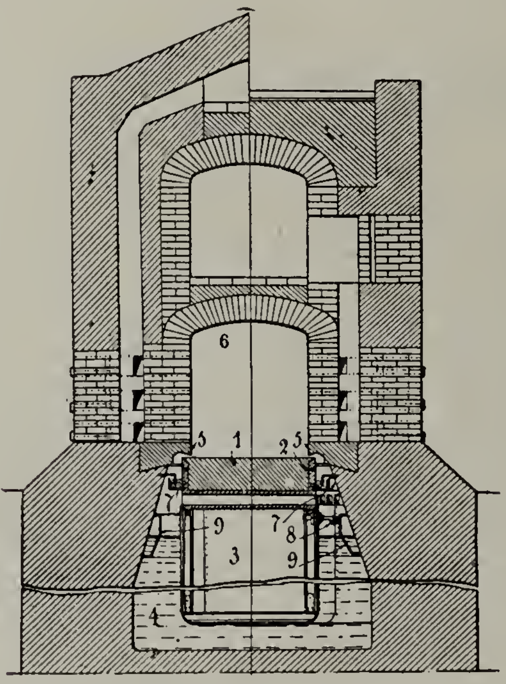
This hasty sketch is intended simply to indicate along what lines the problem of the tunnel kiln has been attacked. The writer believes that we will see a revival of this idea and that the kiln will become a practical and accomplished fact. It may not find application in the industries producing the heavier clay products, but its extension will embrace the burning of plain and enameled perforated brick, roofing tile, drain tile and similar wares. That the kiln has practically failed in Europe does not mean much.

The rotary kiln now exclusively used in the cement industry, was invented in England and was there declared a failure. As soon as the cement industry began to develop in the United States, this idea was at once taken hold of and perfected, with the result that we have to-day rotary kilns 150 feet long with a capacity of 800 barrels per day, a magnificent achievement of modern engineering. Similar achievements are possible with the tunnel kiln.



System of Partitions Used in Faugeron Tunnel Kiln.

With the development of the mechanical stoker, we are not even restricted to the use of the gas producer, though the latter is exceedingly well suited for this work. By the use of the mechanical stoker very low grades of fuel may be used, which could not be utilized in the gas producer.



Floating Platform.

In collecting the above data, the following works were consulted: Handbuch der Gesammten Thonwaren Industrie, Bruno Kerl, rewritten by Cramer & Hecht: Granger, Ceramique Industrielle, Stegmann, Gasfeuerung; Bock, Ziegelfabrikation; Keramisches Jahrbuch, 1910.

# THE KILN PROBLEM

### By Ellis Lovejoy, E. M.

We sometimes envy the man whose knowledge of the kiln problem is so limited that he can select a kiln after a brief consideration, but we are not envious of the stockholders in the concern.

The kiln is the most important factor in any clay working plant, because of its greater cost and also because the cost of burning is the largest single item in the manufacturing operation.

The problem is an intricate one and requires endless study and thought, and, we may add, extended experience, to solve it, and though the solution may seem good, yet the factors entering into it are so variable that numerous changes must be made in the original plan to adapt it to the special conditions under consideration, and it is in the adaptation that experience counts. The problem is more frequently worked out on the yard than in the drafting room.

The question of first importance is the selection of the proper type for any operation, and this involves a study of the materials, the fuels, the possible products, and the market. Having selected the proper type for any operation, the minor modifications to bring it to the highest efficiency for any operation can be worked out on the yard, provided there is nothing fundamentally wrong in the construction.

In metallurgical operations the furnaces are the result of practical experiments, the old has given place to the new, and in each line the types are the same, but this is true of clay-ware burning only in a limited degree. We find in the largest, most modern and most economical yards in the world, kilns which antedate history in their design, and a few miles away the same product being burned in kilns of most recent date, and who can say which is best?

## Types of Kilns.

We have the scove kiln, which is built up with the ware and in itself can scarcely be called a kiln; the up-draft kiln, differing from the scove kiln principally in that it is a permanent walled structure; the up-draft crowned kiln, which finds only limited application; the down-draft kiln; the up-and-down draft; the under-fired down-draft or semi-muffle; the horizontal draft, now out of date; the muffle; the continuous kiln, open-top tunnel and chambered, and the progressive tunnel kiln.

A classification of kilns, by going into details, would make a long list. For instance, in the down-draft we have the rectangular and round, the outside stack, wall stack, center stack and induced draft, the center wall, crosshead flue, radial flue, ring flue—modifications without end.

The problem before us is the selection of type of kiln for any operation—particular operation, we should say.

The up-draft kiln is today, as in the past, burning more brick than all other types of kilns combined. It is sanitary, convenient for rapid work, unlimited in capacity, low in first cost, and economical in operation. We speak particularly of the permanent wall up-draft kiln.

We wish to correct an impression that many people have, that the more expensive down-draft kiln will show economy in fuel over the up-draft. The advantage is the other way. The up-draft kiln will require at least 30 per cent less fuel than the down-draft, and the reason is not difficult to see. The walls of the up-draft kiln inclose great masses of brick and the ratio of wall to ware is much less than in the down-draft, which means less fuel loss in heating up the kiln walls and less radiation loss. The fires of the up-draft kiln are in close touch with the ware and there is no loss of heat from furnace to ware, but in the down-draft kiln the furnace gases circulate under a radiating cover—the crown—before they reach the ware. When we consider that 50 per cent of the fuel used in the down-draft kiln goes to heat up the walls and to supply the radiation loss, we appreciate the possibility of saving in this direction. The up-draft kiln will consume from 400 to 1,000 lb. of coal per thousand brick, while the down-draft will use 800 to 2,000 lb.

The up-draft kiln is essentially a common brick kiln, although some tile and face brick can be burned in the heart of the kiln above the arches.

In any product except common brick the over-burned, cracked, spalled, misshapen arch brick would represent material loss, and the soft brick around the heads and on top would also be unsalable.

In situations where an all-hard product is required and where the quantity of line brick to common brick is excessive, the down-draft kiln may become a competitor of the up-draft kiln, but in the large markets of the country the latter controls.

## The Fuel Problem.

The continuous kiln is the natural competitor of the up-draft kiln in the manufacture of common brick. There are many situations where the continuous kiln is decidedly preferable, and where it will show a substantial profit over the up-draft kiln. Plants of moderate capacity, in localities where fuel is expensive and perhaps low grade, where the clay requires a high temperature to burn, and where there is little demand for arch and soft brick, will have a decided advantage over plants using up-draft kilns. In the large markets where the plants have enormous capacities, where fuel is high grade and comparatively cheap, where the off-product can readily be sold, the continuous kiln has not made any headway and cannot under the present development of the kiln. There will be some saving in fuel under any conditions, but the saving over an up-draft kiln is over-estimated. We are accustomed to compare the continuous with the down-draft kiln, but the figures do not apply to the up-draft. If the brick are being burned with 400 lb. of coal in the up-draft kiln, a saving of 50 per cent of $2.00 fuel would not suffice to offset the disadvantages of the continuous kiln, and we do not admit such percentage of saving in fuel. The quality of the ware cuts a much larger figure and should be the stronger inducement to use the continuous kiln.

The working conditions in the continuous kiln are less favorable, and also, it must be remembered, that the kiln is continuous in its operation, and the ware must be removed when finished, whether there is an immediate market or not, whereas, in the up-draft kiln the product can be held some time without interfering with the factory operation.

It is claimed, and it probably is true, that the continuous kiln requires less labor than the up-draft, but when the difference in the working conditions is considered, we think the difference in labor cost will be small.

Recapitulating the two types of kiln for common brick, we have:

Advantages of up-draft kiln—Low first cost, economy of space, favorable working conditions, low fuel consumption (over down-draft kilns) and kiln storage of product temporarily.

Disadvantage—Low grade of a part of the product.

Advantages of continuous kiln—Low fuel consumption even over the up-draft, all hard product, especially eliminating the arch brick, and perhaps economy in labor.

Disadvantages—High cost and depreciation, unsanitary and uneconomical working conditions, limited capacity in unit kilns, double handling of a part of the product, and questionable color, especially on account of scumming.

### Solution of the Problem.

The solution of the common brick kiln problem, it seems to us, lies in the development of the open top continuous kiln. It has the advantages of both types in most respects, and except for scumming and continuous operation it eliminates the disadvantages of both. The development must be along lines of larger capacities.

There has been constant study and experiment upon the progressive type of continuous kiln, which offers numerous advantages over other types. The fires are stationary and possess all the economies in handling materials mechanically that belong to a central firing station. In connection with producer gas equipment, we have not only the economy of handling, but also we save practically all the initial heat in the gas, since the producer and firing compartment will always be in close touch, and also we eliminate the troubles with soot and tar deposits in the flues. The brick are hacked on cars at the machine and remain there until unloaded into cars or stock pile as finished product thus eliminating the tossing and setting in the kiln. There is no intermediate drier and the labor in connection therewith is dispensed with. The idea is not chimerical at all, in fact it seems quite simple, but the practical difficulties which have come up in the operation of the kiln have delayed the success, which we believe is sure to come.

The down draft kiln, or its prototype, which would include the up-draft pottery kiln, has been the favorite kiln for high grade wares and still holds its place. Compared with the other kilns in cold type, it does not make a favorable showing. It is even as high in first cost as the continuous kiln of similar capacity. The up-keep exceeds that of the properly constructed continuous kiln. It is periodic in its operations, but is too expensive to use as a storage shed, and the ware must be removed when finished. The fuel consumption is excessive. The sanitary conditions are good but the working conditions are not particularly economical except perhaps in the rectangular kiln.

It is pre-eminently the kiln for high grade ware, and the net value of the product leaves a profit over the higher cost compared with the other types of kilns.

Its competitor is naturally the continuous kiln and the competition becomes keener with the rapid development of the latter.

The decision between these two types of kilns for any plant is more difficult to make than between the up-draft and continuous, and yet it would seem to be much less questionable. Both kilns burn all hard ware and there are no arch brick. Paving brick are being successfully burned at a number of plants in the continuous kiln, and we have no more difficult ware to burn. Face brick, drain tile, and fire brick are being burned in continuous kilns in this country, and a much wider range of products in Europe. This being true, and there being no question of the economy of fuel and lower cost in the continuous kiln why should there be any hesitancy in its adoption? Perhaps there should be none; certainly there are many situations where there should be none; there are other situations where the balance between the two types is so even that one might rely upon the toss of a coin, yet considering the rapid improvement in continouous kilns and looking ahead the preference should be given to the latter type; there are other situations where the down draft kiln is decidedly best, regardless of cost.

In face brick, the continuous kiln to date has its limitations, and we cannot get from it the varied product demanded by the market. Flashed effects are at present very popular and the continuous kiln does not lend itself to this color effect, simply because the natural kiln atmosphere carries a large excess of air and the combustion is complete before the gases strike the ware,—the dissociation reducing effect which we get under oxidizing conditions at high temperatures is not sufficient for our purpose.

Plain reds, buffs, etc., can be burned in either type of kiln with the cost advantage in favor of the continuous kiln, but for a wide range of color effects and for greater brilliancy of color the down draft kiln will maintain its place in spite of the higher cost.

The selection of a kiln for a paving brick plant rests largely between the saving in fuel on the one hand and better sanitary conditions on the other, but in a face brick plant we must take into consideration the character and possibilities of the materials and the demands of the market.

Sewer pipe and conduit are burned in down draft kilns and for some time to come there seems little likelihood of much competition from the continuous kiln. Such ware forms a series of chimneys from top to bottom of the kiln, and the draft of the down draft kiln gets all around the ware inside and out equally, which insures not only the best conditions for uniform burning but in salt glazing, distributes the fumes of the salt to all parts of the ware in the short period necessarily allotted to this stage of the burning. In the continuous kiln, particularly the tunnel kiln, the draft is more or less horizontal and the heat advances from one side of the ware.

We have long believed that the continuous kiln was especially adapted to burning fire brick, and it seems strange that the kiln has made little or no progress in this ware. Neither color nor short range burning are factors in this ware, while high temperatures should be an important factor.

### Adapted to High Temperature.

The continuous kiln because of its regenerative principle is especially adapted to high temperatures with minimum fuel consumption. We are somewhat familiar with two notable examples of the use of the continuous kiln in burning fire brick in this country but we do not consider them conclusive. In one instance it was claimed that because of cheap fuel the kiln did not show sufficient economy to warrant its continuance, but we are inclined to think that it was due to a lack of patience and technical skill in working out the troubles which naturally come up in changing to an entirely different method of burning. If continuous kiln men would hold an experience meeting, many of them would report much discouragement after the first year's operation. The other fire brick continuous kiln was antiquated and the results were not up to the mark, and not comparable with the work that is now being done in this type of kiln.

The down draft kiln is not given a fair chance, and it is difficult to say how much more favorable a showing it might make under better conditions.

High fuel consumption is its great fault, but what can one expect from the manner in which the kilns are usually constructed, the character of the furnaces, the method of firing, the exposure to the weather. The walls are not only usually thin, but are shattered and cracked by expansion until they are little more than sieves. The crown is thin and unprotected and the snow melts upon it and the rain runs through it, oftentimes damaging the ware under the numerous drips. The bottom will often extend below the ground water level and the kiln is like a great wick stuck into a pond, sucking up the water to the floor level.

The furnaces may be too small or too large and fuel is being wasted through imperfect combustion or excess air. There are advertisers in "Brick" who will guarantee a saving of 20 to 40% in fuel in the construction of the furnaces, and we have seen situations where the saving might easily exceed 40%. The furnace is only one feature of the kiln, and there is opportunity of further economy in better construction and operation. Continuous kilns are developed and built by experienced men who have profited by failures, and who have taken advantage of the developments worked out by the users of the kilns, but the poor old down draft kiln,—any brickmason who has built one for Smith can also build one for Jones, mistakes and all.

The continuous kiln is fool proof in the matter of burning so far as fuel loss is concerned, since no matter how much excess air we may take into it, the heat which the air takes up is given back to the ware, and there can be little loss in consequence, but in the down draft kiln the excess air carries with it valuable heat, which is not recovered.

We wish to make a strong plea for better construction, better insulation, better protection, and better drainage of the down draft kiln, and when the users fully realize that nearly 80% of the total fuel consumed is required to take care of the kiln losses, there will be marked improvement in down draft kiln operations. Not only better construction, but larger sizes. The rectangular kiln is limited in width, but we do not know the limit in diameter of the round kiln. It increased year by year until thirty feet was reached, where it hung for some time, but we now go to forty feet with corresponding economy, since any increase in the diameter of the kiln lowers the ratio of kiln contents to kiln construction and radiation losses.

In conclusion and recapitulation, the selection of a proper kiln is a problem for every material, locality and product.

If we wish to make common brick then the kiln selection is one of cost of construction, cost of fuel, probable life of the plant from the materials at hand, and demands of the market. The choice will usually lie between the up-draft (or scove) kiln and the continuous kiln, with the balance in favor of the up-drafts where the capacities are large and the brick will stand "coaling."

In paving brick it is largely a question of cost of fuel since the choice must lie between the down draft and the continuous.

Face brick involve a more extended study. Certain colors may be burned in the continuous, or even in the up-draft if there is a demand for common brick from the same plant.

Drain tile being thin walled can be burned quickly and the fuel consumption is low compared with brick, and while it is a common product with a relatively fixed price in consequence of which the cost of burning should largely influence the selection of the kiln, yet there are advantages in favor of the down draft kiln which largely offset the saving in fuel in the continuous kiln, and the best kiln for the ware is not easily determined. If the down draft kilns were built larger and better insulated from losses, the use of the continuous kilns for this ware would be largely confined to districts where fuel was expensive or very low grade.

Fire brick should be, and are not, a continuous kiln product because of the economy of fuel in burning the ware to the high temperatures to which they should be burned.

In burning higher grade wares than those we have discussed, terra cotta, roofing tile, enameled ware and pottery of all kinds the up-draft (common) kiln can receive no consideration, nor so far as we know has the continuous kiln made any headway in any of them, in this country. The periodic crowned kiln, whether up-draft or down draft, open fired or muffled is universally used.

In this connection we quote from a recent Ohio Geological Bulletin of Roofing Tiles:

"The intermittent kiln is almost the sole resource in the roofing tile industry of America. In Europe, the situation is reversed, or at least continuous kilns are vastly more common than here."

This is exactly the situation in other lines—either Europe is far ahead of us in the development of the continuous kiln, or American conditions do not permit the adoption of European methods and equipment.

## UNUSUALLY BUSY SEASON.

J. C. Steele & Sons, Statesville, N. C., manufacturers of brickmaking machinery and appliances, have been very busy this season, having all the orders they could take care of. They have recently made shipment of a 40,000 capacity outfit to the Barboursville (Ky.) Brick & Tile Co., replacing a smaller outfit, also an outfit of 25,000 daily capacity to Maj. J. T. Gooch, Weldon, N. C.; a 40,000 per day capacity outfit to the Altavista (Va.) Brick Co.; an automatic end cutting-table to the Guignard Brick Works, Columbia, S. C.; a 25,000 capacity per day outfit to the Brick & Lumber Co., Wadesboro, N. C.; a 15,000 capacity per day outfit to Washington Long, Rockingham, N. C.; a complete outfit of 40,000 capacity per day, including the Steele system of drying, to the Bourne Lumber Co., Savannah, Ga.; to the New Berne (N. C.) Collegiate and Industrial Institute, a 25,000 capacity per day outfit; to the Davenport (Okla.) Brick & Tile Co. a complete outfit of 75,000 capacity per day, and to the Georgia Brick Co., Athens, Ga., a 40,000 per day capacity outfit. Also to the Winnfield (La.) Brick Works an outfit of 25,000 per day capacity, the Sumter (S. C.) Brick Works an automatic cutter of 75,000 daily capacity. They have also shipped the Steele system of drying to the Selma (N. C.) Brick Co., H. Weill & Bro., Goldsboro, N. C., Farish Brick Co., Reynolds, Ga., Victor Cushwa & Son, Williamsport, Md., Ogeechee River Brick Co., Rocky Ford, Ga., Roger Moore's Sons Co., Wilmington, N. C., and the Easton (Md.) Brick & Tile Co., together with numerous other shipments.

## A MONUMENT OF CLAY.

It was a fitting tribute to the life and work of Anton Vogt, Jr., son of Anton Vogt, the well-known kiln expert, that the monument, recently erected on his grave at Guilford College, N. C., should be of clay. The monument was in the form of a cross and was made of terra cotta, with a white enamel finish, made by the St. Louis Terra Cotta Co. The inscription was especially appropriate, being:

"He was of clay, he worked in clay,
He died as clay and returned to clay."

## YOUNGREN CONTINUOUS KILN.

One of the most unprecedented conditions which has ever existed in the kiln business in the United States is the fact that during the month of June, five new Youngren continuous kilns will be placed in operation, with a total daily capacity of 265,000 brick. At one plant, another and older continuous kiln will be started, making six kilns with a daily capacity of 325,000.

The location of these various kilns extends almost throughout the length and breadth of the whole country, two being at Kachelmacher, Ohio, at the magnificent plant of the Hocking Products Co., which is a re-organization of the old Columbus & Hocking Coal & Iron Co., which has passed through many vicissitudes, but is now ready for successful operation.

The combined capacity of these two kilns is 120,000 brick per day, which, together with a few of the old rectangular, down draft, makes the burning capacity of this plant approximately 200,000 brick daily. Several years of hard labor has brought this plant to a point where it is now ready to produce the goods, and a recent visit there showed its new power plant with its boilers, engines and generators making the "juice" to operate its new Raymond outfit.

Youngren Continuous Kiln at the Plant of the W. H. Jones Brick Co., Macon, Ga.

The Little Falls Fire Clay Co., with a large, new plant at Bayne, Washington, started their 18-compartment kiln to burn seven-pound pavers. This is one of the latest industrial activities of the great Northwest and a great effort has been made for a successful start-off.

The Farmers' Co-operative Brick & Tile Co., Mason City, Iowa, is now on its second round in its effort to reach the results which it has been desiring, in that section of the country. This company has a continuous kiln, fully equipped for the burning of drain tile.

Messrs. Williams & Reagan, of The Knoxville, (Ia.) Brick Co., will start fires in their continuous kiln the latter part of the month and are very enthusiastic as to the results they expect to attain.

At Kachelmacher, Ohio, the installation of the machinery and the subsequent operation of the plant has awakened the town and it is reported that the name will be changed back to the original one of Greendale and a post office established. It is also reported that the Hocking Valley R. R. will build a magnificent passenger station, from the products of the company exclusively, and cover it with a tile roof. It may be noted that the plant is one of the up-to-the-minute concerns of the country.

The awakening of the brick industry is thought by many to be indicative of a more mature and stable growth than has been in evidence up to the last few years.

The builder is now demanding something for his money in the way of a strictly high-class product, in many cases fireproof and nearly always he calls for architectural beauty combined with substantiality and simplicity of construction. Modern methods, modern machinery, and above all a modern conception of what should be, has answered this demand, until today from coast to coast the product of many kilns is supplying a long-felt want in this regard.

## PERMANENCE AND DURABILITY.

The continued popularity of brick and hollow tile in building construction is attested by building reports from every part of the country.

Everywhere the voice of prudence and economy is proclaiming the wisdom of these materials for permanence and durability.—Ohio Architect, Engineer and Builder.

## ONE OF THE BUSIEST.

The brick plant of the Harbison-Walker Co., at Birmingham, Ala., is reported to have sold its output for eight months in advance. It has recently been enlarged and now represents an outlay of about $600,000. The plant has a capacity of 10,000 brick per day and was first put into operation November, 1909. About three hundred men are kept on the payroll of the company, many of them being skilled workmen.

The plant is situated on the tracks of the Southern Birmingham South and the Louisville & Nashville Rys., with ample facilities for receiving raw material and for shipping the product.

There are 14 kilns, having a capacity of 100,000 each. A remarkable feature of this plant is that it contains only one machine, all the brick being molded by hand, as it is impossible to make this character of high grade material by machinery.

## A CENTURY OLD.

The chimney in the old Hawes house at Union, Me., which was recently torn down by the present owner, Jesse Calderwood, to make room for a modern chimney, was found to contain 35,000 brick of the old Maine size—slightly smaller than 2x4x8 inches. One brick was found with the figures "1795" stamped on it.

# OIL BURNING STATISTICS

## Report Showing Comparative Cost of Burning with Different Fuels and Analysis of Clay Used

This is the first of a series of articles to be published by Brick & Clay Record on the burning of different clay wares with oil, including the complete reports made by G. E. Luce, ceramic engineer, which will show faults of kiln construction and recommendations for correction, comparative costs of different fuels and rational analyses of clays burned, with comparison of heat units required for different clays.

Mr. Luce's report of a recent burn made on paving blocks is as follows:

The burn was made with a No. 6 Tate Jones & Co. burner and regular No. 0 pumping, heating and regulating system, and a standard superheater. Steam was used as an atomizer and regulated with Foster regulators. The oil was measured with a Niagara meter.

The temperature readings were made with both Frink and Taylor instruments.

### Temperature Readings.

Top of Kiln.

| | |
|---|---|
| 0° F. to 500° F. | 6 hrs. |
| 500° F. to 1000° F. | 14 hrs. |
| 1000° F. to 1500° F. | 31 hrs. |
| 1500° F. to 2000° F. | 58 hrs. |
| 2000° F. and over | 92 hrs. |
| Total | 201 hrs. |

Bottom of Kiln.

| | |
|---|---|
| 0° F. to 500° F. | 37 hrs. |
| 500° F. to 1000° F. | 15 hrs. |
| 1000° F. to 1500° F. | 26 hrs. |
| 1500° F. to 2000° F. | 109 hrs. |
| 2000° F. and over | 14 hrs. |
| Total | 201 hrs. |
| The 2000° F. was held on top of kiln | 92 hrs. |
| The 2000° F. was held on bottom of kiln | 14 hrs. |
| A difference of | 78 hrs. |

STACK TEMPERATURE.

| Bottom of Kiln. | Stack. |
|---|---|
| 500° F. | 220° F. |
| 1000° F. | 660° F. |
| 1500° F. | 1320° F. |
| 2000° F. | 1780° F. |

It required 27 hours more time to reach 1500° F. on bottom of kiln than to reach the same temperature on top of kiln, and 51 hours more time to reach 2000° F. on bottom of kiln than to reach the same temperature on top of kiln.

If the kiln has had proper draft, then allowing the same proportion of increase in time between reaching the same temperature top and bottom as shown up to 1500° F., the kiln would have reached 2000° F. in 105 hours, allowing 48 hours time for complete vitrification, the kiln would have been burned off in 153 hours, or 6 days and 9 hours.

### Oil Consumed and Steam Pressure Carried.

| | Oil per hour. | Steam pressure. | Total oil. |
|---|---|---|---|
| 1st 24 hrs | 35 gal. | 35 lbs. | 840 gal. |
| 2nd 24 hrs | 40 gal. | 35 lbs. | 960 gal. |
| 3rd 24 hrs | 45 gal. | 37 lbs. | 1,080 gal. |
| 4th 24 hrs | 50 gal. | 37 lbs. | 1,200 gal. |
| 5th 24 hrs | 55 gal. | 40 lbs. | 1,320 gal. |
| 6th 24 hrs | 60 gal. | 40 lbs. | 1,440 gal. |
| 7th 24 hrs | 60 gal. | 45 lbs. | 1,440 gal. |
| Total | | | 8,280 gal. |

Meter Reading, 8,300.

Corrected amount used by tank measurements, 8,442 gal.

**Oil.**—Heat units used allowing 100% efficiency. 19,100 B. t. u. per lb. of oil, and 7 5-10 lb. per gal. 63,315 lb. or 1,058,151,000 heat units. Utilizing 2,000 B. t. u. per block, or 2,000 B. t. u. per lb. of clay. If the proper draft had been provided, the oil consumed would have been in proportion to the time and this would have reduced the oil consumption to 7,542 gallons.

**Kind of Kiln.**—Round down draft, with eight stacks built on top of kiln walls.

**Size of Kiln.**—31 ft., inside diameter, 8 ft. 6 in. from floor to spring arch; crown, 4 ft. raise; total over net from floor to spring of arch........................6,135 cu. ft.
Area from spring of arch to top...............1,509 cu. ft.

Total net area...............................7,544 cu. ft.

**Fire Boxes.**—There are 10 fire boxes with original area of 2 ft. by 3 ft. 6 in., or 7 sq. ft. each. Total area, 70 sq. ft. by 2 ft. 10 in. in height, making the total combustion chamber 146 8-10 cu. ft.

**Opening Through Bag Walls.**—1 ft. 4 in. by 2 ft., or 2.66 sq. ft. each. Total 26 6-10 sq. ft.

**Opening Through Kiln Floor.**—The kiln floor is made of the usual floor tile, 15¼ in. by 4 in., or 73 2-10 sq. in., and has a 1 in. by 9 in. opening in each tile. The floor contains 1,200 tile, therefore there is 75 sq. ft. of opening.

**Flues to Stacks.**—There are 16 flues running to stacks, and they are 9 in. by 9½ in., with 2¼ in. by 4 in. opening, making a total gross opening of 10 5-10 sq. ft.

**Stacks.**—There are 8 stacks, with two compartments each, of 8½ in. by 8½ in., or 8 sq. ft.

**Area Used in Kiln.**—Kiln contained 53,150 standard paving block, 3¼ by 9½ by 4, containing 30.06 cu. in., or 14 4-10 block per cu. ft.; therefore, 3,700 cu. ft., or 62%, of the kiln from floor to crown was occupied, leaving 2,435 cu. ft. of opening through the block.

**Openings for Burners.**—The burners were set in the usual way by building a 9-in. extension outside of the fire boxes and leaving a 4 in. by 8 in. opening area around each burner 32 sq. in. Total for the 10 fire boxes, 2 2-10 sq. ft.

**Fire Boxes Changed.**—The fire boxes were changed by lining them inside with 4 in. of fire brick, as the burners set in the ash pit formerly used for coal, and the lining of the ash pit was made of too low grade of fire brick to stand the temperature. This reduced the total combustion chambers to 124 cu. ft.

**Air Inlets Changed.**—After 36 hours' firing it was found the kiln was short of draft and an opening made into the fire box of 5 in. by 5 in., or 1 7-10 cu. ft., making the total inlet into kiln 3 9-10 cu. ft.

A summary of the kiln would show the following measurements:

| | |
|---|---|
| Area of cold air inlet 2 2-10 sq. ft. air entering at | 100° F. |
| Area through big walls inlet 26 6-10 sq. ft., air passing at | 3000° F. |
| Area through blocks 2435 sq. ft., air passing at | 2100° F. |
| Area through floor 75 sq. ft., air passing at | 2100° F. |
| Area through both flues 10 4-10 sq. ft., air passing at | 2100° F. |
| Area through both stacks 8 sq. ft., air passing at | 1800° F. |

**Air and Its Expansion.**—Air expands 1-495 times its volume for each degree, or doubles itself for each 500° F. The maximum of weight, which means draft velocity of air, is reached at about 552° F.

Therefore at 3000° F. multiply the inlet by 6.

Therefore at 2000° F. multiply the inlet by 4.

Therefore at 1800° F. multiply the inlet by 3 3-5.

This does not allow for any frictional loss, which is 10% in most all cases, and should be added to the size of the flues where any right angle turns are made.

**Deductions.**—Admitting the opening around the burners the glass in the stack. This is increased by steam induc- to be correct for the draft, gage shows .146 in. of water in tion to at least .25 at the burners, and with this draft 50 gal. of oil per hour can be burned with perfect combustion.

The opening through the bag wall should be 13 2-10 sq. ft.

The opening through the block ample.

The opening through the floor ample.

The opening through the flues should contain 14 5-10 sq. ft.

The opening through the stacks, if both are used, and the temperature reduced by damper to 1800° F. would be sufficient; otherwise, they would be 3 sq. ft. short.

These conditions are no doubt found in many plants and are oftimes the cause of poor burns on the bottoms. In other words, but few kilns have large enough flue and stack openings.

**Recommendation.**—Enlarge the area of the flues from 10 5-10 sq. ft. to 14 5-10 sq. ft. and use both flues during high heat. Set 15% more block in the kilns for oil. Burn the brick in the time at which the fires would accumulate 1500° F. by burning 35 to 40 gal. of oil per hour.

## EXECUTIVE COMMITTEE MEETING.

A meeting of the Executive Committee of the Building Brick Association of America was held at the Hotel Hollenden, Cleveland, Ohio, May 16th, every member of the committee being present, and the entire day was spent in careful consideration of the affairs of the association. The secretary-treasurer reported an increase of 56 per cent in the subscriptions of this year as compared with the corresponding date of the year 1910, the amount being nearly $14,000, after deducting the subsription of the eleven members of last year who have resigned.

The present membership of the association is 240, which is a gain of about 100 members, as compared with the corresponding date in 1910.

Sufficient money is now in the bank to pay every obligation, including all the advertising which has been done, and still leave a small balance on hand.

Considerable money is still due on subscriptions and a vigorous effort will be made immediately by the secretary-treasurer to secure the payment of the same.

The question of further advertising was thoroughly discussed and it was unanimously voted to appropriate the further sum of $4,500 for advertising in the following publications: The Saturday Evening Post, Everybody's Magazine, McClure's, Cosmopolitan, Country Life in America, Suburban Life, Craftsman, Good Housekeeping and Literary Digest.

These publications have a national circulation and reach every part of the United States and will therefore bring the "Publicity for Brick" vigorously before the entire country. Every brickmaker or brick dealer in the United States will feel the effect of the advertising upon his business, and it was the unanimous opinion that efforts should be made to bring this before the attention of those who have not yet joined the association and that they should be urged to bear their proper share in this important work.

What the brickmaker needs to bring him up to the level of the modern merchants is "publicity," which in almost every line of business has revolutionized selling methods. The fact that the brick business has been one of the last to adopt modern sales methods is undoubtedly one reason for the fact that it is such a poor field for profit.

Very encouraging reports were received from the South. Director W. E. Dunwody writes as follows:

"There is a great revival of interest in brick building—the greatest I have ever seen in my experience of the past twenty years in the 'brick game.' We have probably nearly ten times as many inquiries now on the subject of brick for residences as we have ever had before and the interest is increasing daily."

A large part of this increased interest is due to the advertising propaganda of Mr. Dunwody in co-operation with the work of this association. What has been done in the South can easily be done in the East, North and West. All it requires is a little progressiveness on the part of the brickmaker and a ridiculously small amount of cash.

The fees for membership in the association are approximately ½ cent per thousand on yearly production of common brick manufacturers and 1 cent per thousand for face brick manufacturers. When the smallness of this contribution is considered it is astonishing that every brickmaker has not already joined this association and put in his mite to further this work.

## ONE OF PITTSBURG'S BEST.

The office and sample room of the Toronto Fire Clay Co. is one of the most neatly arranged of the Pittsburgh brick sales-rooms. The north side of the office wall is provided with shelves for displaying brick, and the illustration shows the neat arrangement of the various kinds that are manufactured by this firm.

Tapestry brick is shown to good advantage, while the various other grades of building brick are also attractively displayed. Besides the many varieties of building brick, the pavers manufactured by this firm come in for their share of attention, also.

Attractive Display Room of the Toronto Fire Clay Co. in the Oliver Bldg., Pittsburg, Pa.

Mr. T. P. Cuthbert, the Pittsburg representative of the Toronto Fire Clay Co., has the office in charge and has proven successful in the very important matter of "selling the goods."

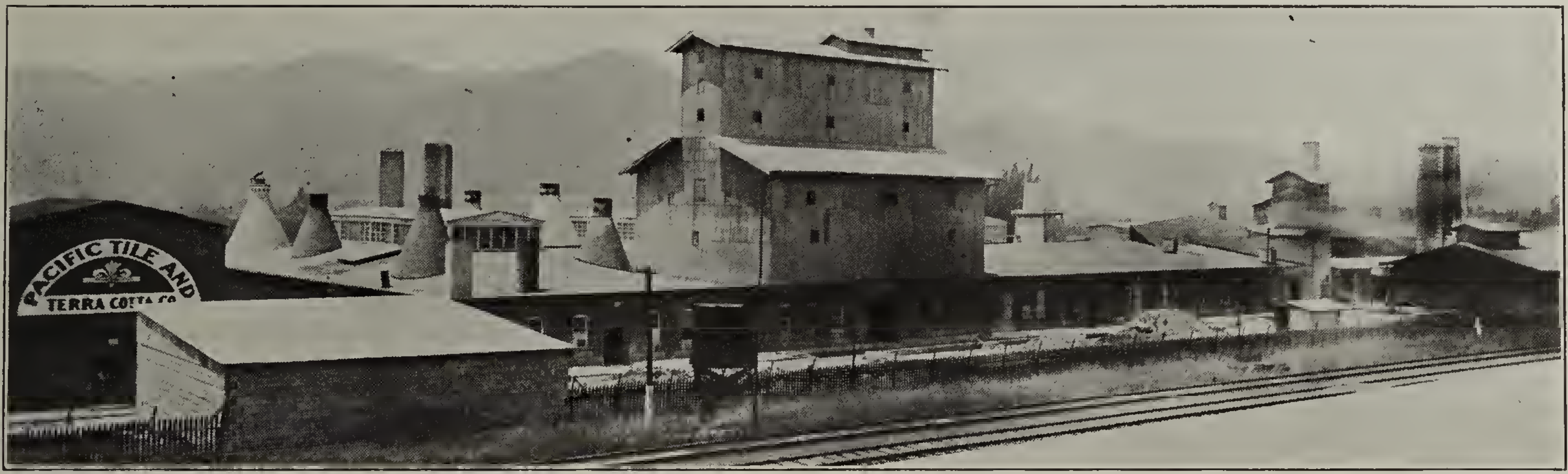
"I have found Pittsburg to be a good field for building brick," declared Mr. Cuthbert to the Pittsburgh representative of 'Brick and Clay Record.' "Building operations are on the increase, and I fail to see where all this talk about dull times in other industries comes in. Our plants have a capacity into the millions annually, and we are working all the time. We have to have the orders to work on, and when we work full, as we have been doing, it is proof that we are getting the business."

# MODERN CALIFORNIA PLANT

## Western Plant, where High Grade Tile and Terra Cotta are Burned by Oil, the Schurs System being Used

At Tropico, California, about five miles from the city of Los Angeles, is located the modern, up-to-date plant of the Pacific Tile & Terra Cotta Co. The office of the company is located at 720 S. Olive street, Los Angeles, where all the business matters of the company are transacted.

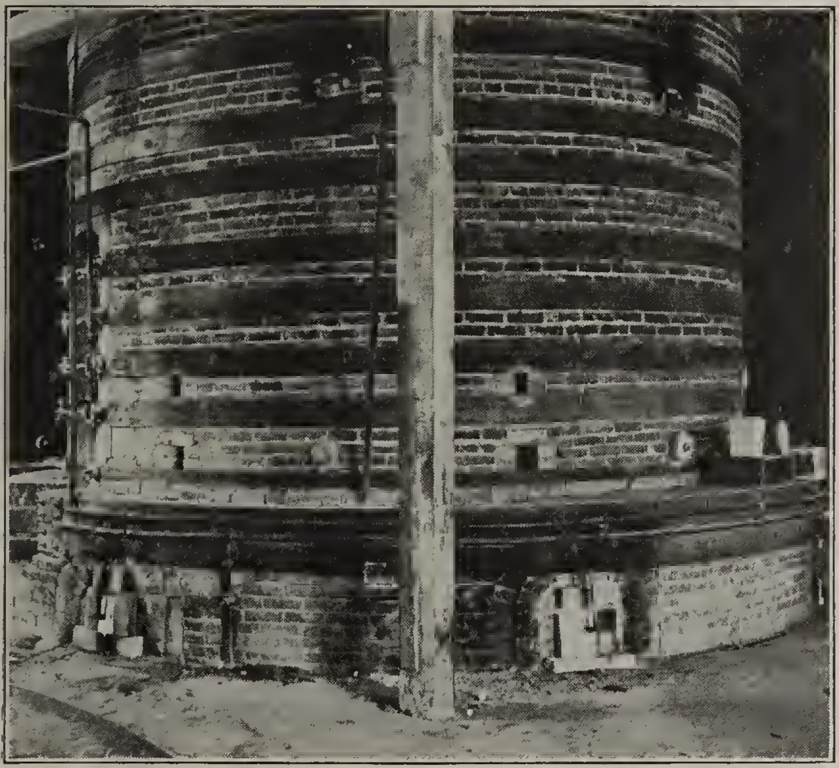
As shown in the illustration, all of the buildings are built of hollow building block and brick, which were manufactured by the company. The plant covers a space of seven acres and there is sufficient land to enlarge it to many times its present size.



The Plant of the Pacific Tile & Terra Cotta Co. at Tropico, Cal.

The products manufactured are floor and wall tile, in different colors and glazes, enameled brick for outside and inside purposes, also terra cotta which can be produced in any shape or form, special molds being made to suit the purpose of the purchaser.

The tile manufactured by this company is of the finest texture and is especially adapted for bath-rooms, toilets, vestibules, lobbies, etc. The white glazed and cream matt tile are said to be unequaled in quality, in that section of the country, on account of the regular size and uniform shades which are the result of careful analysis and experiments with the clay, made by the superintendent and his assistants.



Schurs Oil Burning System, In Use at the Plant of the Pacific Tile & Terra Cotta Co.

Unsolicited testimonials from prominent builders in many large cities of the West, are proof of the popularity of this brick, tile and terra cotta.

Burning at this plant is done entirely with fuel oil, the Schurs oil burning system being used. These burners have been used by this company for almost seven years and have given entire satisfaction. The "Schurs" system is especially adapted for the purpose of this company on account of the uniform and steady heat that is produced, thus avoiding all "flashed" ware, at the same time producing an even color throughout with practically no loss in burning.

Mr. W. M. Murphy is president and general manager of the company, and Mr. Thomas Vigus, secretary and general sales-manager. These men are practical and experienced in the clay business and through their energy and grit have attained the success due them. The factory is under the superintendency of J. W. Hislop, a practical clay man, who has had a world wide experience in this line.

### WORTHY OF A CARNEGIE MEDAL.

A New York newspaper gives a graphic description of the heroic act of Harold Penfield, son of R. C. Penfield, president of the American Clay Machinery Co., in rescuing a two-year-old child from a sewer.

The child had escaped from the care of its grandfather (who had taken it to the park) and fallen into an uncovered manhole, where it undoubtedly would have died had not young Penfield, who was studying his lessons nearby, heard its cries and, securing the aid of a policeman, tied a rope around his body and allowed himself to be lowered into the pitchy darkness and slime of the sewer, where he found the baby sitting in slimy water up to its chin. The dripping child was tied to the rope and was brought to the surface. The rope was again lowered for the youth, who emerged from the pit amid the cheers of the onlookers.

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A company has been organized under the title of Thornton Brothers Brick Co., Rudyard, Mich., with a capital stock of $12,000.

The capital stock of the H. B. Milliken Sewer Pipe Co., of Louisville, Ky., has been increased from $5,000 to $15,000.

# INCREASE SALE OF BRICK

### By W. E. Dunwody, President of the Standard Brick Co., Macon, Ga.

Brick is the aristocrat of building material. It has a known pedigree which goes back to a day more than three thousand years before Christ, when the Assyrians reared their terraced temples and palaces in Western Asia.

In Ur of the Chaldees, whence Abraham went into the land of Canaan, in Nineveh, and in Babylon, the important buildings were made of brick.

Brick may reach a venerable old age, but it never reaches the state of decrepitude. Brick comes from the bosom of Mother Earth in the form of plastic clay; it is hardened by the most powerful agency in the world—fire, and is proof against the further encroachment of fire. It defies wind and rain. It is as enduring as the earth itself.

Then let us consider why builders should use brick. There are many reasons, but I will mention only a few. They are durable, being better than iron, as they do not rust. Brick buildings practically need no repairs. Brick are manufactured almost everywhere and can be bought at reasonable prices. They do not decay. By their use the best buildings can be constructed at a very moderate cost. They do not twist, shrink, or crack. They will not disintegrate or crumble. Brick lend themselves to artistic designs of great variety. The brick building is fireproof.

These vital points in favor of brick, it would seem, would be convincing and that every one would use brick rather than lumber, where it is possible to do so. Why is it, that this is not true?

Chiefly because the vast majority of people are under the impression that brick buildings cost much more than frame buildings. In fact, the general idea is that the cost of brick buildings is almost prohibitive.

Perhaps it is natural that we, who were born and have grown up in the land of wooden houses, should take this type for granted. But on account of the fact that lumber is daily becoming scarcer and more expensive, making the cost of a house of brick very little more than one of cement or wood. The Building Brick Association of America recently undertook to determine something definite regarding this matter.

For this purpose a modern eight-room frame house of good design was chosen, and plans and specifications were prepared by a well-known and competent firm of architects. These plans and specifications were submitted to five well-known contractors, and each fully advised of the object of the investigation.

Each contractor was given the same information and instructions, and each took plenty of time to figure with care, with the following results:

Taking a weather boarded house as a standard, they found that a house complete with the outside walls 10 inches thick of brick, would cost an advance of 6.5 per cent. over the weather-boarded house; that a house with 12-inch brick walls would cost an advance of 10.7 per cent. over the weather-boarded house; that a house of stucco, on hollow clay block, would cost 4.9 per cent. in advance of the weather-boarded house; that a house of stucco, on frame, would cost an advance of 2.5 per cent. over the weather-boarded house; and that a house with 4-inch brick veneer, on hollow clay blocks, would cost an advance of 7.7 per cent. over the weather-boarded house.

In these estimates, face brick were figured to cost $17.50 per M. and common brick $9.00 per M., which cost in Macon $14.00 and $6.00 respectively.

By the above figures you will note that there is only a very small difference between the different modes of construction in point of cost.

These figures are absolutely correct, and the contractors' bids with their offers to build this identical house at the figures named can be had. Notwithstanding these facts and figures, thousands of wooden houses are being erected every year. Why? Because the public does not know the truth.

How are we to educate the people? By intelligently and carefully prepared advertising matter, which will present "Facts in Favor of Brick." We are sometimes asked "Does advertising pay?" In fact, we sometimes ask ourselves the question.

Name for me fifteen articles that you purchase somewhat regularly, and I will show you that not less than ten of these articles are widely and constantly advertised. How about that hat; those shoes; those collars, shirts and underwear; that suit of clothes? What is your favorite brand of cigars, soap, baking powder, coffee?

Do you buy known or unknown hardware? Are you influenced to a certain, in fact to a large extent, by the effect of someone's advertising? Take an inventory of all the purchases you make and tell me how few of them include absolutely unheard of unknown articles.

> "The man who whispers down a well,
> About the goods he has to sell;
> Won't reap the shining, golden dollars,
> Like him who climbs a tree and hollers."

Do you know that our fires destroy annually nearly, if not quite, as many buildings as we erect? In America the fire loss during the year 1907 was $2.51 per capita. In Europe in the same year the loss was only 33 cents per capita, nearly eight times as much in America as it was in Europe. In America we use 500 feet of lumber per capita, and Europeans use only 60 feet per capita. Europe uses brick.

Only one more word. Let me say to those of you who handle brick: The best way to sell brick is to always carry a stock of them. You can't sell what you haven't got.

## CIRCLES THE GLOBE.

The secretary of the Building Brick Association of America calls our attention to the fact that inquiries for literature mentioned in their magazine advertisements have been received not only from every state in the Union and from Canada but from Mexico, South America, England, Scotland, Australia, China and the Hawaiian Islands.

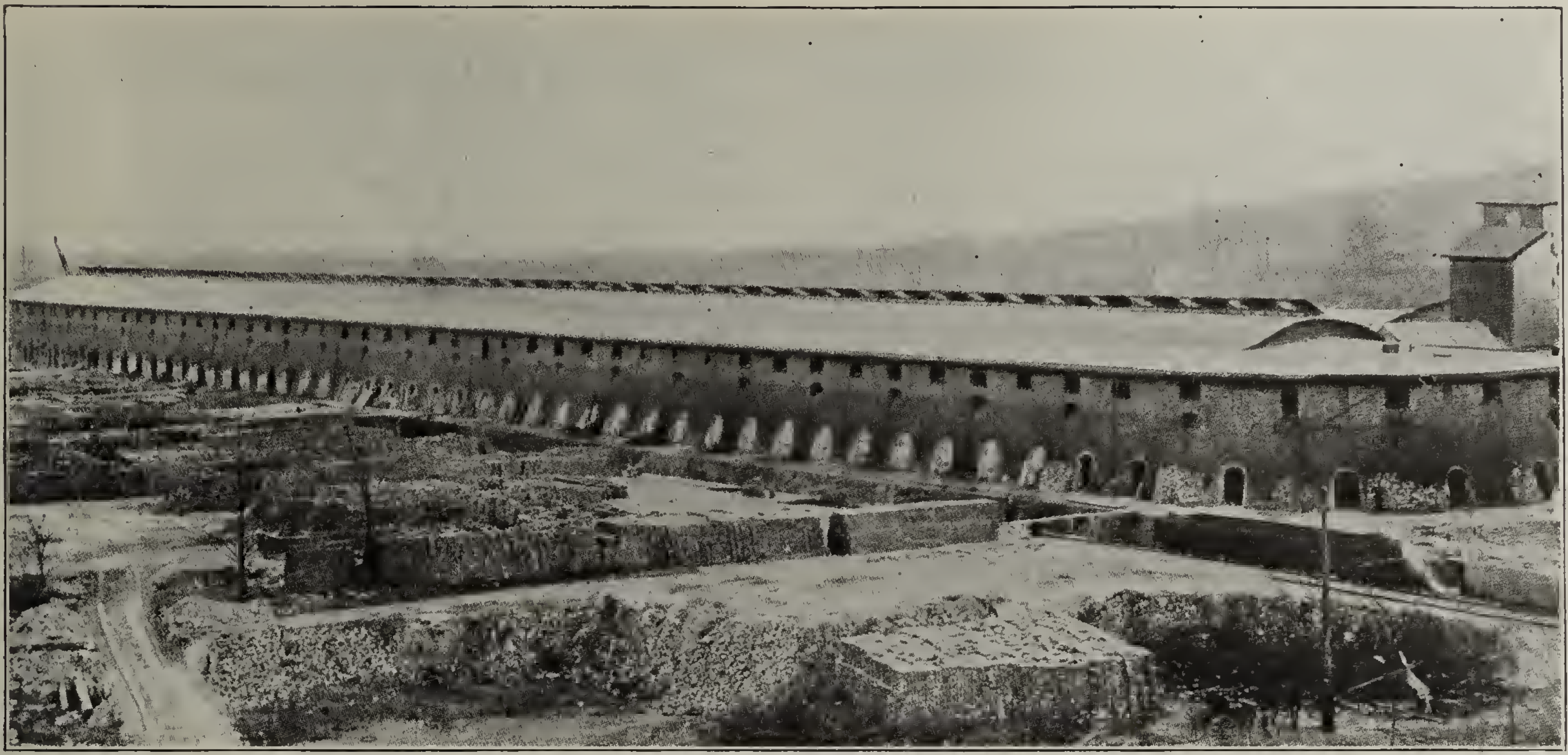
## ENJOYING A GOOD BUSINESS.

Geo. E. Snowden & Co., owners and builders of the improved flue system kiln, report two years of steady business with two erecting crews busy all the time. The company at present has contracts for sixteen kilns, besides considerable additional business in the form of dryers and other equipment.

## DON'T SUBSCRIBE.

We advise you not to subscribe to Brick and Clay Record, unless you intend to take it as long as you live, for the general rule is, "Once a subscriber always a subscriber to Brick and Clay Record." Many of our readers preserve every issue and have them bound at the end of the year, to keep for reference.

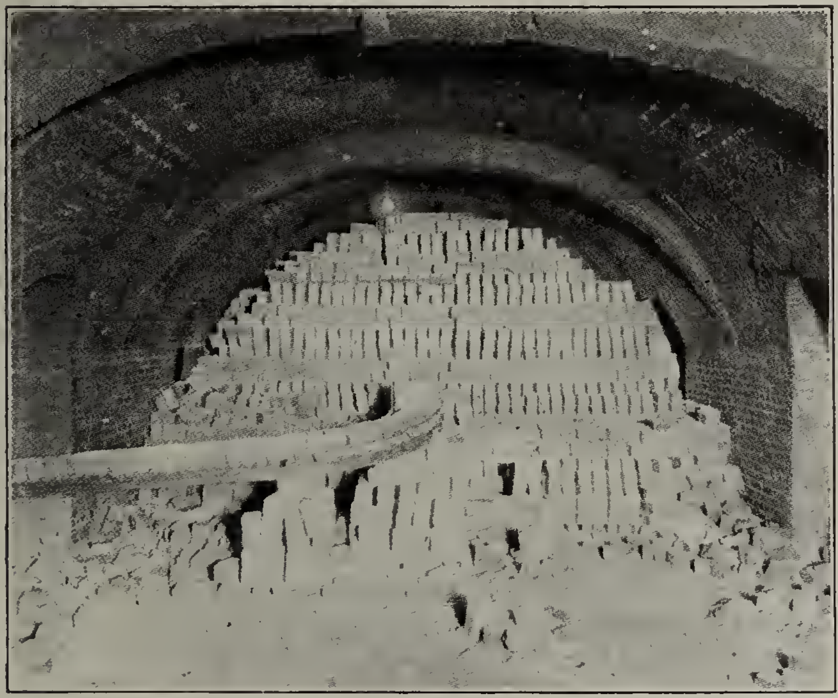
We are planning many entertaining and instructive features for future issues.



Haigh Continuous Kiln, at the Plant of the Bessemer Limestone Co., Youngstown, Ohio, Said to Be the Largest Kiln in the World.

## BURNING OF CLAY PRODUCTS.

The burning of clay goods, as has been stated many times in these columns, is the main item of expense as to cost of manufacture, and the main item, as to their value, when finished. This being the case, it has always seemed strange that so many ask a kiln builder what it costs to burn per thousand without first asking what percentage of A No. 1 material may be secured from the kiln.



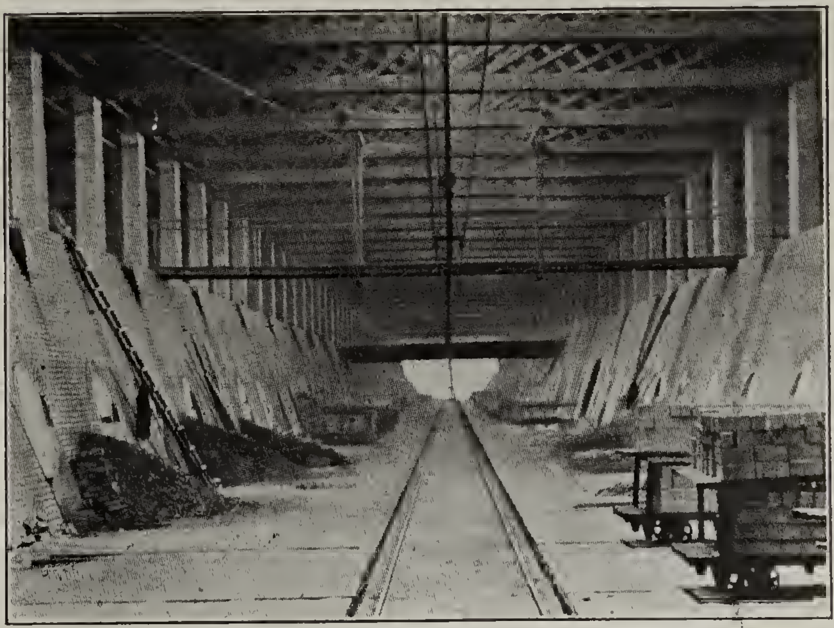
Drawing Section of Continuous Kiln by Gravity Carriers.

No matter what grade of brick or other clay products made, no matter what kiln is used, whether up-draft, down-draft, or continuous, the first thing of most importance is the percentage of No. 1 product which can be produced, this comes before speed in burning, and also before cost of fuel and labor.

The well known kiln designer and builder, H. Haigh, at Catskill, N. Y., has made it his life study to perfect a kiln which would produce the largest possible average of No. 1 product, and that he has succeeded in his effort is demonstrated on any number of successful yards, throughout the country, where the Haigh continuous kiln is now in operation. Mr. Haigh's services have been in great demand and he is constantly engaged in the supervision of important kiln construction. We have yet to learn where any kiln built under his supervision has failed to accomplish all that was anticipated from it.

Mr. Haigh is himself an expert burner and brick works engineer and he is frequently called into consultation by clay products manufacturers to advise regarding troubles or possibilities for increasing the efficiency of plants. The Haigh system of kiln construction for drying brick with waste kiln heat has been perfected as the result of long years of practical experience.

This publication has heretofore shown illustrations of the Haigh kiln, as constructed at various important clay working plants and the illustrations herewith give an excellent idea of the appearance of the perfected Haigh kiln. They were taken on the yards of the Bessemer Limestone Co. at Youngstown, O., and the kiln shown is said to be the largest continuous kiln ever built in the world.



Court of Continuous Kiln, Showing Electric Car Track.

The Haigh kiln, in some places, is fired from both sides, and the top, at other places entirely from the sides, and yet at other places all from the top. At the No. 2 plant of the Bessemer Limestone Co., Youngstown, Ohio, Mr.

Haigh has a kiln, burning paving block, which are claimed to be nearly 100 per cent all hard No. 1 block. It is well worth while for one to take the time and trouble to go and see this kiln, the pictures shown here, will give some idea of the immense size of this kiln, which is really five kilns in one, as it contains five sets of fires.

In the United States there are scores of these Haigh kilns at work, of all sizes, burning from 5,000 to 200,000 brick per day, in which the following clay products are successfully burned: terra cotta, roofing tile, drain tile, hollow brick and block, fire proofing, dry pressed face brick, fire brick, paving brick and common building brick. We are told one concern in this country is now using three of these kilns, with a fourth one under construction. Many leading brick manufacturers are now using this kiln.

## CONTINUOUS KILN PROBLEM.

A writer in the British Clay Worker discusses the problems of producing satisfactory colors and glazes in the continuous kiln, as follows:

"There is no difficulty in obtaining good colored brick in a continuous kiln of the ordinary type, provided the kiln has a sufficient number of chambers, or that the owner is willing to waste a little fuel in order to improve the quality of his goods.

"There is no difficulty with a down-draft kiln, so that if the same conditions could be introduced into the continuous kiln, the color of the brick would be satisfactory. The question therefore resolves itself into: 'How can the conditions of a down-draft kiln be obtained in a continuous one without losing the advantages of the former?'

"There are several methods of doing this, and they have been patented by many designers of kilns. All of them have this feature—they remove the steam from the goods so quickly that no condensation or softening can occur, and they do not allow the gases from the burning fuel to come into contact with the brick until the latter are at a sufficiently high temperature not to be affected by them.

"Brick which burn well in a down-draft kiln but 'scum' in a continuous one, are disfigured by the condensed material, which separates out of the fire gases and settles on the brick before they are really dry. This defect is usually caused by having a kiln with too small a number of chambers, or, what amounts to the same thing, allowing the fire gases to come into contact with the cold, or almost cold, brick. The best method of remedying the difficulty will depend upon local conditions to a large extent, but the following brief rules should first be used, in order to ascertain the general cause of the defect.

"A slow-reading thermometer, properly protected in a metal case, should be lowered into the chamber containing the freshly set brick, which chamber is being "smoked" with an independent fire, and shut off from the rest of the kiln. This thermometer, attached to a light chain, should be lowered in various parts of the chamber until it nearly touches the floor. Each time it is drawn up, and before it is lowered into another part of the same chamber, its temperature should be noted. The smoking should be continued until no part of the chamber has a temperature lower than 150 degs. C., or 300 degs. F. When this temperature has been reached, the damper separating this chamber from the fire-gases may be removed, and the latter allowed to heat the brick in the chamber.

"The temperature of the fire-gases passing out of a chamber to the chimney should never be less than 150 degs. C. or 300 degs. F., if good color is required, it being necessary to waste a certain amount of heat in order to prevent condensation on the goods."

## GLAZING BRICK.

Small quantities of glazed brick may be burned in a continuous kiln by constructing a box of brickwork and placing them inside it. Provided that this "box" is not more than one yard cube, the heating will be sufficiently regular for most purposes.

If the kiln is of the more modern type, in which the fuel is burned in fire-boxes or grates, and quite apart from the goods, it is not at all difficult to burn an entire chamberful of glazed brick by simply erecting a wall of a sufficient height to prevent the brick being "flashed." The setting of the brick should be arranged so as to protect the glazed faces as much as possible.

The real difficulty in glazing brick in a continuous kiln lies in the alteration of the finishing temperature of that part of the kiln containing them. If the glaze is finished at a temperature below that ordinarily required for the unglazed brick, the brick in the adjacent chamber may be underburned; if, on the contrary, the glazed brick need a higher temperature than usual, the ones in a neighboring chamber may easily be overheated. In experimental work it is also desirable to fire the kiln so as to suit the glaze rather than to fire it as usual ,and adjust the glaze to suit. The variations in the finishing temperature of an ordinary brick kiln are very great (often as much as 250 degs.) and this is ten times the permissible variation for most glazes. It is, therefore, far better to build a small experimental kiln to hold a few dozen brick, and when the results from this are satisfactory, and the finishing temperature of the glaze is known (by Seger cones or some other pyrometer), a chamber filled with glazed brick may be burned in the continuous kiln.

If the brick are covered with a simple transparent glaze (as in salt-glazing), there is not the same risk of damage by "flashing," and the work is, consequently, made easier.

The ordinary continuous kiln is not heated to a higher temperature than corresponds to Seger cone 1, and most kilns are finished at a lower temperature. Yet for satisfactory glazing a distinctly higher temperature is desirable, but this involves a risk of overheating the brick in the next chamber, as already mentioned.

## THE ARCHER IRON WORKS.

A new company with Mr. A. T. Scannell as president and L. A. Clark, secretary-treasurer, has recently acquired the plant of the Archer Iron Works at 34th Place and Western Ave., Chicago, where they will continue to manufacture industrial railway equipment and a large line of other articles for use about clay plants, including iron wheelbarrows in a variety of styles, coal, clay, drier and transfer cars, turntables, track and switches, trucks, carts and wagons. Those desiring descriptive catalogs may procure them by addressing the company at the above address.

## REGULATE SIZE OF BRICK.

Something less than a century ago there was a tax on building brick in England, and in order to evade it the brick were made of larger and larger sizes. These were used for cellars and other concealed places. To stop this fraud an act was passed in the reign of George III. fixing the legal size of brick. Early in Queen Victoria's reign the tax was taken off, and brick may now be legally made of any size whatever, but any change from the standard size would bring about great inconvenience. All calculations for building are made on this standard size, and the London building acts have practically fixed it at 9 by 4½ by 3 inches for all time.

## BOSS SYSTEM OF BURNING BRICK.

That progress has been made in the art of burning brick must be admitted by everyone who has made any investigation of the subject. The primitive methods of burning brick which have been in vogue for thousands of years have finally been compelled to yield to more modern and up-to-date processes.

The air under pressure idea in brick kilns, or the Boss System of burning brick, has been one of the overwhelming, overpowering factors in arresting the attention of the most antiquated brick-makers, teaching them that there was something better in store than the old field or adobe kilns. Brick makers are not entirely to blame for having clung so tenaciously to the old ideas, for the reason that in the past there have been, and are at the present time, innumerable impostors exploiting supposed new ideas in kiln construction, and the crude manner in which they placed them on the market proved very expensive to brickmakers, causing untold loss and financial ruin; and the advent of the idea of applying air under pressure to brick kilns was one of the first steps that marked permanent advancement and was one of the factors that led to improved conditions, and this system took a firm hold on the hearts and minds of the brickmakers of the world, which it continues to maintain.

The art of using air under pressure on brick kilns is not now considered an innovation, as it formerly was. Brickmakers today are willing to admit, as a certain brickmaker did in a recent letter to Mr. Boss, that the air under pressure in brick kilns or the Boss system of burning, was like unto the house of Biblical fame, "built on a solid rock and the wind and rain cannot prevail against it." The Boss system of burning brick accomplishes more than one purpose—it does more than control the elements—it accomplishes more than the mere consuming of cheap coal, slack or screenings, but it is said to burn brick and all clay wares for one-half less fuel cost than is possible by the old method, and in addition to these achievements is able to accomplish results that are not possible under the old burning processes.

To illustrate,—the same cheap fuels will, at no extra cost, produce the wonderful modern fire-flashed brick in many different varieties. In fact, few people stop to realize that it was the air under pressure idea or the Boss system of burning that finally made it possible to produce the wonderful fire-flashed brick that have grown so popular under the modern names of "Tapestry," "Oriental" and "Colonial" and to accomplish these results in the same brick kiln in which the common ordinary building, pressed, paving and fire brick and all clay wares of any and every description are burned.

Another great source of economy in this system that has interested brickmakers and made them feel that they were treading on safe, secure ground is the fact that the Boss system can be applied to the old style brick kiln. It not being necessary to change the kilns in the least, to accomplish these wonderful results, both in fuel saving and in producing the various shades and qualities of brick desired. In other words, the Boss system of burning brick consists in the original idea of applying air under pressure to brick kilns and can be applied to the round or the square down-draft kilns as well as to the permanent clamp kilns of the up-draft pattern.

Round Down Draft Kilns, Equipped with the Boss Burning System.

## PAVING BUSINESS BRISK.

Paving brick and block business is said to be exceptionaly good at Pittsburg. Local sales managers there for the Ohio paving brick plants report big business, and that all these plants will be working steadily until the close of the season.

The Northern Michigan Brick & Tile Co. at St. Ignace, have been installing additional machinery, to increase the capacity of its plant, including a "clay digger" operated by steam, which will dig enough clay in ten hours to make 100,000 brick, requiring but one man to handle it.

BRICK
CHICAGO
A RECORD OF THE WORLD'S PROGRESS IN THE CLAY INDUSTRY

**BRICK AND CLAY RECORD**

Vol. XXXVIII. JUNE 15, 1911 No. 12

## THE PIECE WORK PROBLEM.

Most clay manufacturers would gladly install the piece work system in their plants, thereby doing away with much of the annoying detail common to the business, but few have found the advantages sufficient to offset the glaring defects of the system.

One of the chief obstacles arising in the use of the piece work system, is the difficulty in maintaining a high standard of product, owing to the "rush work" of employees in the effort to make a high wage, also the careless and reckless use of equipment, due to allowing small breakages and needed adjustment of machinery to go, until a serious and perhaps lasting injury is done to the machines.

Beginning at the dry pan, a little haste results in allowing the material to reach the auger machine in imperfect condition. A little rush work of the off-bearing crew results in loading brick which is No. 2 while green. As every manufacturer knows, there will always be a sufficient number of seconds, even when the greatest care is used, and none but perfect brick should ever be allowed to pass into the drier; and even after drying if any seconds are discovered they should be sent back to be reground.

In setting the brick, undue haste, in the beginning, may result in the stack of brick being out of plumb, causing it to fall, or if left to burn the result is crooked and warped brick.

In transferring cars to the kiln a reckless crew often overturn loaded cars, ruining the entire carload of goods.

In wheeling goods, either to the yards or cars, too much "hurry up" work results in chipped and broken brick and inadequate inspection, which may end in the rejection of the entire lot when it reaches its destination, perhaps several hundreds of miles away, for it is a well-known fact that a few poor brick, selected at random, may result in the condemnation of the entire lot, which may be on an average "a fair grade of goods."

So, "take it by and large," the problem is a difficult one to solve, but, as in many other things, "what is one man's medicine is another's poison." In many plants the "piece work" system is used with apparent success, much depending on the manager, the state of the machinery, the materials used and last, but not least, the class of laborers, for the conscientious worker will do his work well, no matter what system is used, and after all, efficiency is the keynote of the successful worker.

In two plants, with comparatively the same conditions as to materials and equipment, the piece work system will be used in one very advantageously, while the owner of the other plant will complain bitterly against the system, saying that he is unable to use it with any degree of success, so it is like most of life's problems, it must be solved by each man for himself.

We heard the other day of a proposal which was made to a man to undertake the foremanship of a brickworks under the following conditions: The plant was owned by a coal company and there was no one in the firm with a technical knowledge of brick manufacture. The entire plant was in good order, and was to be so maintained by the proprietors. The brick are made by the stiff-mud process, and the undertaking was to deliver 10,000 per day or 3,000,000 per year from the date of agreement. The proprietors were to furnish the plant, all fuel, etc., and to pay the same amount in wages as in the past, except that they were not willing to pay the foreman a fixed wage, but he was to be paid 12½ cents per thousand for brick accepted by them.

So far as the fee offered goes, it was about the usual equivalent in wages for a good foreman in a first-class yard, but its value depends entirely on the basis of the acceptance of the brick. If the firm are not unreasonable the fee would be safe with a trusty clay, but if any brick were damaged in the kiln and so were refused, the foreman would not be paid for them. If a satisfactory arbitrator can be found to decide in case a dispute arises as to the quality of any brick and some clear definition can be given in the agreement as to what brick must be accepted and which may be refused, the offer is probably worth accepting, in spite of its unusual nature. It is certainly less risky than where a man takes the whole manufacture of the brick by contract and pays all wages.

In all piece work payments the chief causes of dispute lie in what is meant by each party with reference to the precise quality of the goods made. If this can be so clearly arranged as to avoid dispute the arrangement is generally advantageous to all concerned.

Don't be down in the mouth because your neighbors are taking their vacations, while you are so rushed, at the plant, you cannot think of getting away. Begin now, to save your money and make plans to take your vacation next March, and visit the greatest clay show of the age, attend the National Convention and see the sights in the great city of Chicago, at the same time. Plan to bring your wife and a party of friends and have the time of your life. Read, in our last issue, about the great exhibit, given by our English brothers and then resolve to do, as we did in 1776—beat them.

# DOWN DRAFT KILNS

### By Anton Vogt

At the last Convention of the National Brick Manufacturers' Association, at Louisville, this question came up for general discussion: "How to Avoid Soft Burned Brick in the Bottom of Round Down-Draft Kilns."

Realizing the importance of answering the above question more fully than was done at the convention. I have undertaken to prepare this article. Mr. C. P. Mayer, Bridgeville, Pa., has, in my opinion, discovered a very practical method for overcoming the soft brick in the bottom, by burning first down-draft to a certain settle, then reversing the fire and burning from the bottom. The idea is correct, but to construct kilns in this manner is too complicated and also very expensive, and if not in the hands of a very careful burner, results will be disastrous. The method is too risky to be practical.

I propose to show that brick and also paving block can be burned hard, from top to bottom, if the margin between vitrification and softening or fusing is not too close. In case they are burned with a down-draft first and an up-draft in finishing to vitrification on the bottom, it is clear, that the bottom courses become soft and are crushed from the weight of the block above, the same as though the kiln had been burned in the ordinary way. So what's the use of going to all of this extra trouble?

It might be more practical to burn from the bottom up, first to the point of incipient vitrification and then reverse the fires, the hot bottom pulling the heat down from the top more easily. Experimenting along these lines would probably produce different results than from ordinary burning. But that is not the only bone of contention.

We must find a way to burn our shale hard to the bottom without crushing. If we can not do this in the down-draft kilns, we can not do it in any other kiln. Down-draft means that the heat must go down—this is plain—so all we have to do is to keep on firing until it is down and then hold it to some extent without increasing the heat on top. Can this be done? Yes, it has been done, but we must have the proper kilns.

#### Down-Draft Kiln-Construction.

We have in most down-draft kilns not enough draft flues under the brick, the floors being too solid, sometimes three-fourths of the kiln bottom being solid brick-piers or earth. The brick burn hard only part of the way down,—the bottom courses burning soft six, eight, ten or twelve courses high.

Why? Because the heat can no more go through the solid brick bottom than water can go through the bottom of a wash-tub unless there is a hole in it.

The heat in the solid bottom kiln is not a moving, live heat, it is a stagnant dead heat. The definition of stagnant is: Not flowing, motionless, a cessation of motion, having no course, become sluggish (see Webster's dictionary).

Why can we not burn the bottom courses in some down-draft kilns hard?

Because we have no room under the brick, in all parts of the kilns, to pull the heat down, it hangs around the bottom courses like a fog, holding the heat too long on top and around the fire-bags, overburning the brick on top and around the bags and producing soft brick on the bottom.

Now, if we can burn hard brick to within six or eight courses from the bottom, does it not look practical to have more room under the brick, at the bottom, to turn that stagnant bottom heat into a live moving heat and may we not reasonably expect to burn the brick hard from the sixth or eighth bottom course down to the floor? We must have flues under the kiln bottom, equal in depth to the height of the number of courses that do not burn hard. This must be determined by the quality and behavior of the clay in the kiln and also by the process of manufacturing the brick. For instance, stiff-mud brick will burn harder in the bottom courses than dry-press brick, because the heat is not so easily absorbed in the dry-press brick, they being denser than stiff mud brick. In tempering clay for stiff-mud brick much more water is used than with screened clay for dry press brick.

After the water in stiff-mud brick is evaporated, the brick are full of pores and therefore burn harder, because they absorb more heat. There is a way to burn brick hard to the bottom of down-draft kilns, if the kilns are properly constructed and paving block can also be burned hard enough for street paving purposes in such kilns, but no kiln will produce these results if the burning is faulty. If blocks crush in the bottom courses from the weight of those above, set 32 high, better results can be secured by setting them 28 high or lower if necessary, using a few courses of building brick in the bottom.

But in plants where pavers are made exclusively, the burning must be carried on in the sure way, not by guesswork. The margin between vitrification and softening should be determined; the beginning of oxidation and its completion must be known; the shrinkage or settling must take place slowly and steadily; a moderate draft must hold the heat on the bottom, too strong a draft burns up the top brick and produces soft brick on the bottom.

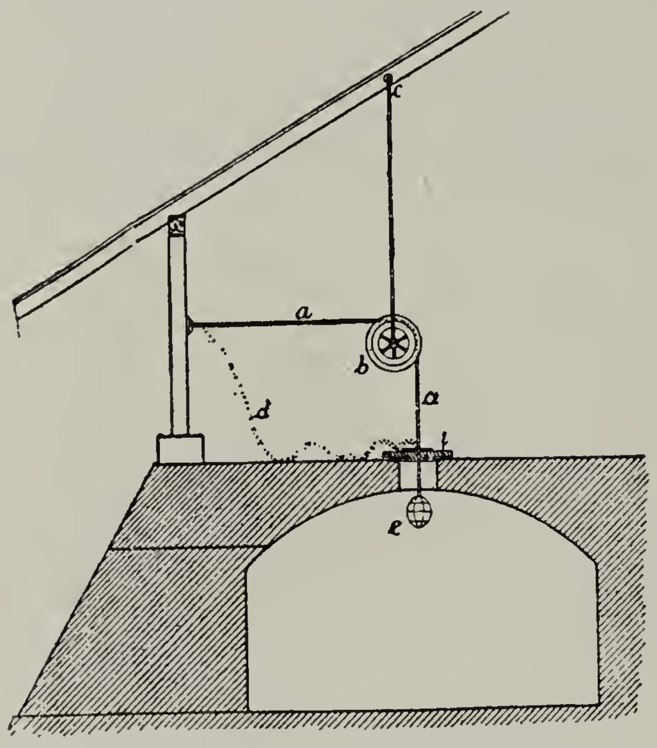
Paving block generally burn too hard. They over burn in front of the fires. To overcome this, the block should be protected in front of the fires with fireclay-slabs set on the bagwalls against the pavers or firebrick can be used, leaving the sides of the bags open. The brick burn all right between the bags, but right in front, where the direct flame hits them, they overburn, shrink more at the ends and slip into the fireholes.

Higher bagwalls would prevent this, but we must have bagwalls low in order to get the heat to the bottom of the kiln.

To get the heat to the bottom is not a difficult task. It means simply a continuous heating up and cooling down of the kiln. When fired with coal the fireholes become a bright red and as the coal burns out and the heat goes down the color of the heat changes. It gets dull and then it is time to fire again and this is repeated until the brick are hard to the bottom. This is very easily done in properly constructed "Down-Draft Kilns."

## ELECTRIC LIGHT IN KILNS.

A writer in a German brick magazine deplores the damage to the cables used for carrying the current to light the kiln chambers while the latter are being emptied. This is partly due to their contact with the hot kiln, and may largely be avoided by hanging the cable over a pulley suspended above each hole, through which the light is hung. In the accompanying sketch both right and wrong methods are shown. The wrong (though usual) method consists in allowing the cord or cable to lay on the kiln, as shown by the dotted line (d), while the correct method, with a loose pulley, is shown at a and b. This arrangement is better than the use of portable hand lamps, connected to the electrical cables by connections just above the entrances to the chambers, as the light is always out of the way, yet can be adjusted to any convenient height by raising or lowering the pulley.



Device for Lowering Electric Light into Kilns.

## STAND BY THEIR COLORS.

Reasons why the Ricketson's "Red Brick" Brand of Mortar colors give satisfaction are given in a folder which the Ricketson Company is issuing. These colors are guaranteed against fading or crocking, and have been used year after year by satisfied customers. One company states it has used them for thirty-five years, testing them in acid, heat and cold, with most satisfactory results. The Ricketson Mineral Paint Works is located at Milwaukee, Wis.

## CAUGHT THE BALL.

Mr. L. P. Willis, proprietor of the Ullin (Ill.) Brick & Tile Co., caught the ball, thrown by Mr. Gangewere, "on the first bounce," and has the following to offer on kiln firing:

"In your June 1st issue, I noted Mr. Gangewere's remarks on kiln firing. He stated that he had discarded fire doors and received better results without them.

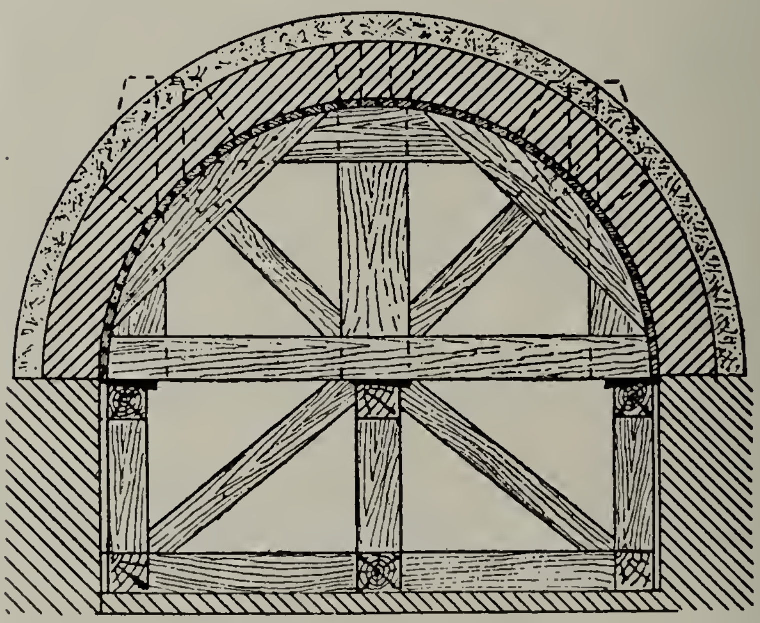
"I am only running a small drain tile plant with one kiln, which is a good one. I have never had doors or grate bars on it.

"I get an even hard-burn and good color in 55 hours from the time I light the fire. I never use a slash bar in the top of the fire. The implements used are a hook for pulling clinkers out at the bottom and a scoop shovel to fill the fire hole as full as necessary. I find it is not necessary to fill it as full at one time as another.

"The system I use is to let the coal burn its own way and not move or stir it any more than positively necessary."

## FRAMES FOR ARCH REPAIRS.

One of the Continental clay industry papers has recently published a discussion on the merits of various arrangements for repairing and renewing kiln arches, and concludes that the one shown in the accompanying sketch is the best. The general construction of these setting frames is well known, but some bricklayers use structures containing an unnecessary amount of woodwork. In the one shown the semi-circle and the cross beam, with all above it, are made of one piece, while the beams and struts below are separate. The arched portion is adjusted to the correct height by means of blocks or wedges. By making the measurements of the wooden uprights conform to those of the dotted lines representing the portholes, the construction of the arch is much facilitated.



Setting Frames for Repairing Kiln Arches.

The arrangement of the cross laths on top of the arch center is indicated, though only their ends are shown. It is convenient to have the edges of these laths to indicate the sizes of the holes, etc.

## BURN NO SECONDS.

The sooner a damaged brick is discovered and thrown out the less will be the loss on it.

# DRAINAGE SITUATION IN IOWA

## Paper Read by G. G. Wheat Before the Meeting of the Iowa Brick and Tile Association at Mason City, Feb. 14-15

We have been having a good market for drain tile in Iowa for several years. Of rourse, wet weather is the primary cause that creates demand for tile.

The law passed several years ago by our state legislature was the first in this state which made the creation of large drainage districts really practicable. The greatest stimulus to the tile business resulted, especially for the large tile for mains. The demand for the smaller sizes, of course, kept pace with the general demand.

Under this law, which started things going in drainage, many abuses could and did arise. Prominent were the high rate of interest under which the public ditches were built, though nominally 5½ and 6 per cent., yet the methods of paying are such that the contractor must protect himself by bidding high, the real interest amounting to practically 8 per cent. These vast public works could and should be done under low rates, say 3½ to 4 per cent. interest, as all of the bonds are backed by taxes on the lands.

The difficulty in securing trained engineers for the hundreds of great ditches led to the employment of some who were yet untrained in the handling of drains in these easily washed Iowa soils.

Several real disasters have resulted from building ditches with steep grades in easily eroded soils. Much open ditch work has been done where tile would be better.

There has been also some complaint, along a score of other lines, though all arise from the establishing of drainage districts and building the ditches.

The State Drainage Association, a voluntary association of those interested in draining Iowa, has done much to further drainage by their "get together" meetings in February each year.

Finally, two years ago, being ready to aid as far as I could, I presented the matter of creating a temporary State Drainage Waterways and Conservation Commission, to the Iowa State Drainage Association, and as a punishment I was made to act on the legislative committee, and after consultation with many of the leading men of Iowa I drafted a bill, providing for the creation of a State Commission, to serve two years. Their duties were to make an investigation "of the entire question of the relation of the state to its soils, waters, forests and minerals," the first duty being to investigate "the present condition of public drainage in Iowa, and the benefits which can be derived by securing the best of engineering experts, the most economical administration of drainage projects, and a more economical method of financing at lower rates of interest, and show methods by which these benefits may be secured." The Commission was also to investigate the extent of flood plains of our rivers, the annual losses and methods of prevention; the survey of water power in Iowa and the possibilities of navigation on our rivers.

This bill passed, lacking but two votes of being unanimous, as it was soon recognized that a thorough investigation was needed before the drainage laws could be bettered.

We have had the help of the U. S. drainage engineers as recommended in the bill. Iowa has spent $5,000 and the Federal Government more than $10,000 in one of the most comprehensive and searching investigations ever made in a like cause. This commission has made its report and recommendations, and it is now up to us, as citizens of Iowa, whether we improve the conditions for draining Iowa, preserving the lakes, developing water power and making navigation possible eventually.

Examine a few data which I secured in fifteen counties as a result of many weeks' work.

Some newer drainage counties spend $2.70 per acre for outlets. The best and most successfully drained counties run as high as $8.91 per acre for outlets. The first was mostly open ditch work, the latter was open ditch where absolutely necessary and drain tile where 32-inch tile and less would do the work. Overflow ditches are used to help in flood times and enable the tile to do the work.

The landowners are using a great deal more tile in this latter county than in the first one.

It is necessary to tile drain in order to get the benefit of a large tile outlet. If an open ditch had been dug many a landowner would be satisfied with the surface drainage which it gives him.

I find that the total amount of drainage in sixteen counties, where I took complete records of every ditch, covers about 25 per cent. of the acreage needing public drainage ditches. The total amount this has cost is over $8,000,000.

In the remaining fifteen counties of the wettest part of Iowa the totals are all the record I have which are over $7,000,000.

This is only the public drainage, and the private drainage will eventually be over three to four times as much. So that the program laid out and actually being followed now is over $15,000,000 public and from $45,000,000 to $60,000,000 private.

It is perfectly clear from a careful study of the records of all this drainage, that the factories now built and in operation can take care of the draining of Iowa by a little expansion in capacity of each as the trade demands it, especially at this time, as Illinois is shipping heavily into Iowa and the states north, west and south are building their own factories, thus cutting off a former market for the surplus of Iowa drain tile factories.

What we need to do is to get busy and watch closely all the proposed changes in law intended to better the drainage conditions, and we should do more than that, we should do all we can to urge the bringing in of bills to carry out the recommendations that the State Drainage

Commission make, and then back up these bills by our influence, which will cost effort and money.

In the lowlands along our rivers there are over 1,200 square miles of lands where tile is not used, which is equal to two Iowa counties in size. These lands will use tile up to the limit if it can be shown that they can be used with profit.

At present these lands are endangered by floods, and much of this area is flooded every wet year, and during crop growing months, this Commission is to advise how to stop these floods.

These two counties will use a large amount of tile. In round figures this will mean $5 to $10 worth of tile on every one of the 768,000 acres, or $3,840,000 worth of tile.

This Committee will also show the need of saving our lakes as a place for storing excess water in wet times for use in dry times.

The idea of this Commission originated with clay workers and was put on its feet by the clayworkers, and it is a great piece of constructive statesmanship.

It has cost $15,000 to make the investigation; it will be worth many millions more to the state of Iowa.

## DRAIN TILE NOTES.

Excellent progress is being made towards getting the plant of the Reliance Tile & Brick Co. at Belle Plaine, Ia., ready for work, and it is expected to have goods ready for sale before fall.

The Underhill Brick & Drain Tile Co., at Rockport, Ind., are installing a number of improvements which will double the capacity of its plant when completed. A large dryer for drain tile is being erected.

The National Drain Tile Co., of Hillsdale, Ind., recently laid over $3,000 worth of tile in one week, being more than in any previous week's business of the company.

Richmond, Mo., is justly proud of its fine new $25,000 plant recently erected by the Pea Ridge Brick & Tile Co. The company has a fine deposit of shale which makes a splendid quality of tile.

The Rockford (Ia.) Brick & Tile Co. have elected the following officers for the year: J. W. Brown, president; G. O. Mitchell, vice-president; R. A. Wallace, treasurer; R. F. Bruce, secretary. Directors: E. W. Kluckholn, W. H. Talbot, W. A. Briggs, A. B. Milloy, F. C. Johnson and Wm. Smith. The company has two new kilns under construction, which will make eight in all. J. H. Hemphill is the newly-elected manager of the company.

The Portland (Ind.) Drain Tile Co. has secured the contract for a drain in Perry township, to cost $1,378.

The work of placing the machinery at the plant of the Whitehall (Ill.) Drain Tile Co. is going forward rapidly and the plant will soon be ready for operation.

Forest Grove, Ore., is to have a tile factory. Mr. E. Gurney and Otis Risor have purchased the old brick yard northwest of the town and incorporated a company under the name of the Forest Grove Brick & Tile Co.

A $10,000 plant is being erected near Mildred Park, Springfield, Ill., for the manufacture of drain tile and sewer pipe. The name of the company has not yet been made public.

## A. B. C. LITERATURE.

The American Blower Co., of Detroit, Mich., have recently issued a number of important pieces of trade literature which will be sent to any address upon request. Among the publications are bulletins No. 298, 299, 292, 294, and 291 relating to the various types of blower and exhaust fans made by this company and those interested in the use of waste kiln heat for drying will do well to secure copies of these bulletins.

## THE TECKTONIUS LUG.

One of the important considerations in kiln construction is the form of the banding and lugs used. Many kiln builders have the idea that a kiln once built, the matter of banding is of secondary importance and are disposed to use any kind of lugs or bands without much regard to their character. The wise kiln builder, however, having invested many dollars in a new kiln, will see that same is made permanent and protected in the proper manner through the use of the best system of banding that can be found, making his work permanent and giving the kiln the greatest possible strength and permanence.

The Tecktonius lug has become the standard in modern kiln construction and is found in use on the best kilns everywhere. There is no longer any excuse for kiln builders using some home-made make-shift, as the very best lug that can be secured, the Tecktonius, can be purchased for less money than the old style out of date, riveted shoe lug. The Tecktonius lug does away with rivets and never wears out and no mechanical knowledge is required to attach them.

All those who have used Tecktonius lugs declare that they are indispensable in proper kiln construction. They are made to stand any strain which they may be subjected to and cannot get loose and they are made of the best malleable iron throughout. It is to be noted that in using the Tecktonius lug there are no rivets to shear and no holes to punch. There are simply clamps at the ends of the bands that can be readjusted or removed at any time, permitting the tightening of the bands whenever desired.

Another feature of the Tecktonius lug system is the simplicity with which they can be atached to door frames, giving the kilns a neat and substantial appearance. These lugs are manufactured by the E. C. Tecktonius Mfg. Co., Racine, Wis.

## THE PULSOMETER.

"The Pulsometer" is the title of an attractive hand book recently issued by the Pulsometer Steam Pump Co., of 17 Battery Place, New York City. The book is fully illustrated with photographs showing the pulsometer employed for different kinds of work. It explains fully the operation and construction of the pulsometer. Explanations are given of the special adaptability of the pulsometer for a variety of uses and the tables on pipe sizes, loss of head due to friction in pipes and other data on the flow and pumping of water should interest all engineers. Copies of this book may be had by writing to the above company.

## LOOKING FOR A LOCATION.

W. W. Anspach, of the firm of J. P. Anspach & Son, located at Edgerton, Ind., and his associates are looking for a location for a tile plant, in the West or Southwest. They expect to put $40,000 to $60,000 into the business.

If a suitable site, in a good territory with no other tile plants near and with good railway facilities can be secured, they would begin to build this fall. Mr. Anspach is experienced in the business and will be the manager of the enterprise. Those interested would do well to write to him at Edgerton, Ind.

## WANTS TO BUY TILE.

The New Orleans (La.) Roofing & Metal Works wants addresses of manufacturers of tile and vitrified sewer pipe.

The Heyburn Brick Plant at Boise, Idaho, is a thriving plant with a capacity of about 30,000 brick a day. Twenty men are constantly employed and the enterprise promises to be a valuable addition to Boise's industries.

# THE PAVING BRICK INDUSTRY

## BRICK BEST PAVING MATERIAL.

In the Chicago Evening News, James J. Condon, chairman transportation committee, Southwestern Improvement Association, of Chicago, tells of the merits of brick paving as follows:

"Asphalt pavement on any street is a mistake, both from a financial and practical standpoint. Repairs are needed almost continuously and by the time the guaranty required by the city expires, the street is just about in condition for a brand-new pavement. For traffic purposes it is unsatisfactory, as it is soggy in warm weather and slippery in cold weather.

"There is, however, a happy medium between these two materials which is receiving the careful attention of the property owners at this time and that is the vitrified brick pavement. Its cost is about half the cost of granite and but slightly in excess of asphalt. Eminent engineers contend that the very outside life of asphalt is ten years, while brick will give splendid service for at least twenty years and requires practically no repairing.

"To the user and the property owner the brick pavement affords a sanitary, healthful roadway with an ease of traction surpassed only by the steel highway, and therein it presents to the team owner the economical feature worthy of consideration. With an equal expenditure of force and with less wear and tear upon equipment a greater load can be drawn over a brick-paved surface than over any other and this would mean an enormous saving in expense of transportation.

"In the majority of our streets granite pavement would be considered both too costly and too noisy, while asphalt, which looks very pleasing to the eye when just laid, is not a durable pavement, as the experience of Dayton, O., fully confirms. That city has spent on asphalt pavement over $1,300,000, for which it paid prices ranging from $2.20 to $2.76 a square yard. The repair bill from the year 1900 up to January, 1907, reached the appalling total of $216,000, besides the hindrance to traffic and the disagreeable conditions resulting from the tearing up of the streets from time to time, and now the city is engaged in replacing a large portion of the asphalt pavement with brick.

"The question of practical pavement is engaging the attention of many of the improvement associations in Chicago and from the facts and figures available it would seem that brick, on account of its durability, freedom from repairs, disintegration or climatic influences, is a very satisfactory material from the standpoint of true economy."

## VITRIFIED PAVERS.

The first brick paving ever laid in Amarillo, Texas, was laid recently in the presence of a large number of interested citizens. Some difficulty was experienced in getting men to lay the paving. At the present time negroes are engaged for this particular part of the work.

The Standard Lime & Brick Co., of Missoula, Mont., are exhibiting some fine samples of vitrified brick recently turned out at their new plant.

The Rankin Paving Brick and Clay Co. has been organized by Herman S. Rankin, Frank A. Chaney and Lee B. Cannon, with a capital stock of $800,000 at Denver, Colo.

Bids were let recently for vitrified paving brick work in Louisville, Ky., amounting to about $40,000. The bids ranged from $1.79 to $1.90 per square yard. The paving on 15 blocks will be reconstructed.

The Polenske-Schellak Brick Co., at Hastings, Neb., recently installed a large amount of expensive machinery for the manufacture of the finest quality paving brick. It is expected that by July 1st the plant will be in operation.

It is said that the Des Moines brick plants are furnishing 75 per cent of the paving brick used in the state of Iowa. They have also supplied the brick that were used to pave every station platform of the new Puget Sound extension, the Milwaukee & Northwestern freight yards in Chicago, the Union Stock Yards in Chicago, as well as many other large contracts throughout the country.

Brick Paved Country Road in Tuscarawas Co., Ohio.

## A BUSY COAST PLANT.

The Oakland Paving Brick Co., Oakland, Cal., 20 miles east of Oakland, is one of the largest paving brick plants on the Pacific coast. The main building is 976 ft. long by 74 ft. wide in which is established the most modern of brick making machinery including one of the new Penfield brick handling machines. The kilns are 625 ft. long, containing approximately 4,500,000 common brick and about 80,000 fire brick. The plant will have a capacity of 155,000 to 180,000 common brick per day or 100,000 vitrified brick. Oil is used for fuel. As vitrified brick are manufactured at two other places on the Pacific coast—Seattle and Los Angeles—and as the demand for that product is heavy the company feels confident of a prosperous business career. The officers of the company are: L. G. Burpee, president; C. K. Holloway, secretary.

## CONDITIONS IN ALABAMA.

Birmingham, Ala., June 3.—For the past six months business in Birmingham in the line of shale paving brick has been decidedly off, and as a result the yards of the various companies are overstocked with the product. However, all companies are of the opinion that the next six months will see better conditions as a whole, and that business will pick up with a rush, and unless unforeseen obstacles arise, when once the business has been placed upon a paying basis, it will stay there.

Mr. W. H. Graves, of the firm of the Graves Shale Brick Co., in discussing the situation made the following statement:

"It is true that business has been rather bad with us this year, and that the same condition will be found throughout the South in our line. No contracts for brick of any real importance have been received for months. However, we expect to secure some of the large contracts for the work that is being started in several Southern cities. The outlook is decidedly more promising than were the conditions of the past six months."

"The only chances that we have had in several months to bid on any large jobs are just now being offered to us through the recently issued advertisements of the cities of Knoxville, Tenn., Rome, Ga., Jacksonville and Pensacola, Fla., to the effect that they are in need of paving brick," stated B. A. Inglis, of the firm of Copeland & Inglis Shale Brick Co. "Outside of these, we see nothing in sight.

"The South is really just beginning to wake up to the realization of the value of good paving brick for her streets; her people are just getting over the effects of the war in regard to our particular line. The market for the past six months has been very bad on account of the bond market. The Southern cities are just now beginning to sell their bonds to the extent that they are able to afford municipal improvements. And, of course, we believe that we have better times ahead."

Jacksonville, Fla., has awarded a paving contract of about 3,000,000 brick to the Georgia Engineering Co. at Augusta, Ga.

The following Southern cities have recently voted bond issues for the improvement of streets and roads: Americus, Ga., $40,000; Cullman, Ala., $25,000; Decatur, Ala.; Elberton, Ga., $5,000; Northport, Ala.; Selma, Ala.; Albany, Ga.; Gadsden, Ala.; Mobile, Ala.; Atlanta, Ga.; Demopolis, Ala.; New Decatur, Ala., $14,000; Newman, Ga., $50,000.

Gates Bros. & Co., Union City, Ga., are desirous of being quoted on 220,000 average brick to be delivered at Fairburn, Ga., and 80,000 average brick for Atlanta, Ga.

## STREET PAVING IN MEXICO.

Perhaps the most notable feature of the work of advancement of the cities of Mexico is street paving. An enormous amount of this character of work has been done during the last few years. This is particularly true as to the City of Mexico, Guadalajara and Vera Cruz. In Monterey considerable street paving has been done and arrangements are now being made to extend this improvement to all of the streets in the business portion of the city and into the residence districts. The original paving in Monterey, covering several blocks in the heart of the city, was done several years ago, vitrified brick being the material that was used. It is now purposed to use asphalt for the new paving that is to be put down. In San Luis Potosi and Chihuahua there has also been done a considerable amount of street paving, thereby adding wonderfully to the good appearance of those cities.

## GALVESTON'S PAVING RECORD.

Nothing adds to the general appearance of a city more than clean, well paved streets. The improved condition of the streets in Galveston during the past few years is remarked by almost every visitor.

The city engineer's department of that city has just completed a statement showing the expenditures by the city for public improvements from Jan. 1, 1903, to Feb. 28, 1911, amounting to $1,491,961.40.

Of this sum $251,970.65 was expended for vitrified brick pavement. Over 6¼ miles of brick paving was laid, and for concrete and vitrified drains $228,897.58 was expended.

## PAVERS IN DEMAND.

The brick men say that a perceptible increase in paving brick business, at Louisville, was noted during the past few weeks. They say that during the spring months there was a seasonable paving famine, for but little stock was carried on hand and desultory paving orders were filled with dark or medium gray face, but the situation in regard to supply has changed to meet the demand and there is now a-plenty doing in the paving brick line. Vitrified operatives assert that their product is in fine demand for this season of the year, since it seems that the Louisville city authorities cannot divorce themselves from good brick highways any more than they can taboo a solid red sidewalk. There is said to be an unusual amount of street and roadway improvement evident in that city this spring and summer, especially along the popular highways of Third and Fourth avenue and through the thriving suburban sections of Parkland and Crescent Hill, where brick stand in higher favor than in the Highlands.

## PAVING NOTES.

The first kiln of paving brick has been made at the new $200,000 plant of the Granite Brick Co., at Columbia, S. C.

The Springfield (Ill.) Paving Brick Co. reports some good orders for goods to be shipped to St. Louis, Chicago, Mt. Pulaski, Rock Falls and Rockford, including an order for 30,000 brick for Springfield, Ill.

The San Angelo (Tex.) Brick Co. has begun its initial trial of making paving brick. If the experiment is successful it will mean much to West Texas, which stands much in need of paving brick.

The Alliance (O.) Brick Co. has secured the contract to furnish brick for a street to be paved at East Palestine, O. Three streets are to be improved this year at that place.

The city of Fort Worth, Ark., showed the proper spirit when it awarded the contract for paving seventy-one miles of brick to the Burke Bros. Brick Co. of that place, as it helps a home industry, which has $175,000 invested in a plant, where one hundred men are given employment and 75,000 brick are made each day. In addition to paving brick, high-class vitrified wire-cut face brick is made by this company.

The Indiana Paving Brick Co. at Brazil, Ind., has been repairing its kilns and brick stacks.

## UNSATISFACTORY PAVEMENT.

A street in Appleton, Wis., paved with concrete, has proven very unsatisfactory. Large cracks have appeared from which large pieces of concrete have broken away, hindering traffic considerably, and in two months' time the pavement will be in a ruined condition. Concrete was chosen by the property owners because of the fact that it was a little cheaper than some of the other materials offered. After this experience, it is probable that the Appleton people will not care to use concrete pavement.

# SEWER PIPE NEWS

## THE LEAVEN IS WORKING.

"A drop of ink makes thousands think,
As you have often heard.
There is, of course, a lot of force
In just one printed word."

The truth of the above is plainly evidenced by the interest and enthusiasm which have been aroused in sewer pipe circles by several articles which have appeared in "Brick and Clay Record," in the interest of raising prices and getting them established on a basis where a fair profit will accrue to the man who makes the goods.

We are interested in seeing the producer get a just and fair recompense for the use of his machinery, time, money and brains. Our columns are the "Forum" where all will be given a hearing, so "speak on," and mutual benefit will undoubtedly result from an expression of the sentiment of those directly interested. A well known Philadelphia sewer pipe manufacturer offers the following thoughts on the subject:

"Since the appearance of your articles in the May number of 'Brick and Clay Record' on the conditions of the sewer pipe industry, the manufacturers have been holding meetings and finally agreed to issue a notice to the 'trade' giving information of an advance in the price list, at the same time withdrawing all prices and stating that new prices would be furnished on application.

"Through all of this there is no mention made of a change in discount. Do the manufacturers intend to allow the discounts to stand as in schedule No. 7? If so, then all the parties who are directly interested in the manufacture of sewer pipe should heartily coincide with this advance in the price list, and strictly adhere to these new prices and the discounts as named to the trade, under no circumstances under-cutting in order to get rid of their manufactured ware. Under these conditions a small profit could be realized from their product, provided no rebates were allowed with the excuse that the orders had been placed with their factory at the old price and discounts, which were in use before the adoption of schedule No. 7.

"It seems strange that the factories engaged in this line of manufacture cannot hold prices. They seem to have the sole purpose of getting rid of their stock on hand at cut-throat prices, and it is certainly time that the manufacturers of sewer pipe and flue linings began to realize that they are in the business to make a little profit on their products, instead of realizing just enough to meet running expenses, and in some cases not that.

"It may be possible that the manufacturers of clay products of this kind, after reading these comments, will sit up, get busy, and look over the conditions connected with the selling of their wares, and strive hard to get results in dollars and cents by having every one connected with their factory understand that the prices are to be upheld in every transaction. Now, let all the manufacturers get together and hold another meeting, the result of which will be another advance in the price."

## SEWER PIPE.

The contract has been awarded to E. N. Jelks Brick & Tile Co., of Macon, Ga., for one mile of sewer pipe to be laid on the Bay Shore Blvd., Tampa, Fla.

## THE SEWER PIPE SITUATION.

Concerning the sewer pipe situation the following item from the financial department of a prominent Ohio newspaper is of more than passing interest:

"Brokers report that Pittsburg is bidding 13½ for American Sewer Pipe stock, although brokers there are lowering the quotation at the close in order to hold the public quotations for the stock down. The gossip of the street is that a merger that will take in several new plants is on the tapis. The floating supply of the stock held in Cleveland is reputed to have been quietly picked up during the past few weeks."

There is no denying the fact among sewer pipe manufacturers that some news along the lines hinted at in the above might be available ere long, but for the present there is "nothing doing."

## SEWER CLEANING IN NEW ORLEANS.

In cleaning small sewers in New Orleans a rope is passed through from manhole to manhole by use of the Healy adjustable rod. A ball, one inch less in diameter than the sewer, is then attached to the rope by means of an eyebolt passing through the ball. Another rope is fastened to the other end of the eyebolt and the ball then dragged through the sewer with a head of water behind it, the sand and sediment being caught by baffle boards in the manhole at the lower end of the line. This method has proved very effective. Where the sand or sediment has hardened in the pipe and will not let the ball pass, a chain and wire brush are dragged through to disintegrate it.

This method is followed for all sizes of sewer up to and including 21-inch pipe.

## LOGAN CLAY PRODUCT CO.

The Logan Clay Product Co. (plant located at Logan, Ohio), realizing the fact that sewer pipe and brick cannot both be manufactured at the very lowest cost under one roof has quit the manufacture of salt glazed brick, re-arranged all machinery and equipment for the exclusive manufacture of its line of sewer pipe, flue lining, etc.

All the small 26-foot round downdraft four-stack kilns have been replaced with round downdraft kilns 40-foot in diameter. These larger kilns have proved to be money-savers in fuel as well as labor in drawing and setting, and no trouble whatever is experienced in getting a good heat for a heavy salt glaze. One double flue stack is used for two kilns, and two of the large sized kilns have capacity equivalent to six of the small kilns—approximately six cars of sewer pipe burned at one time in each 40-foot kiln.

This company has access to an unlimited supply of choice clay for salt glazed pipe and an exceptionally good clay for fire clay flue linings.

The daily output of the plant has been increased 40 per cent and, without doubt, they are ready to supply their share of the business.

From the reports on proposed work now under consideration, an enormous amount of sewer pipe will be used this year.

# POTTERY NEWS

## GENERAL NEWS OF THE CRAFT.

General ware pottery manufacturers of the United States will begin to close their factories for a fortnight, commencing July 1 or thereabouts. The summer dullness in the retail lines is upon the manufacturers, and the plants will be repaired and improved to take care for a big rush in fall business, which is sure to come, starting with August 1.

There will be a summer meeting of the United States Potters Association in Atantic City this year, and this session will likely be called for early in July.

The annual meeting of this association will be hed in Washington, D. C., this year, probably about December 12th, but this date has not been definitely decided upon by the executive committee.

The annual convention of the National Brotherhood of Operative Potters, the workers, is now in session at Atlantic City. Following this meeting the Brotherhood will present a new list of demands to the manufacturers, and this will be followed by meetings of committees representing both sides to sift matters down to a fine point. However, there is little probability that there will be a strike in the pottery trade.

Fire caused a $4,000 loss to the straw sheds, cooperage and stables of the Wellsville China Co., fully covered by insurance. The plant is owned by Monroe Patterson, of East Liverpool, who is also president of the Patterson Foundry & Machine Co. The fire is said to have been of incendiary origin.

J. H. Birback, of Akron, O., has been at Gadsden, Ala., with a view of erecting a pottery there. A company is to be formed with $75,000 capital stock for this purpose. It is reported that clay of exceptionally high quality for domestic pottery purposes has been found in the vicinity of Gadsden.

A mammoth stoneware pottery is to be erected in the Zanesville, O., district by Ransbottom Bros., who have just bought additional ground and will expend $125,000 in erecting a new addition. The company is the heaviest producer of stoneware goods in the Muskingum valley, their plant being located a few miles from Zanesville. The firm has taken over nearly 25 acres more of land, part of which will be covered by new pottery buildings.

Foundations for the new plant to be built at Sebring by Fred Sebring, general manager of the Limoges China Co., are complete. It was announced that the new concern, which will be known as the Saxon China Co., will manufacture a general line of ware, which consists of dinner ware and specialties. It will be three or four months before the pottery will be in operation.

### Electric Porcelain Combine.

The consolidation of the electric porcelain interests of the United States in East Liverpool was announced in this journal six weeks ago, although the manufacturers at the time denied that "any move was on." The filing of deeds at Lisbon, O., however, for the properties in East Liverpool only served to back up former statements that an electric porcelain trust was being considered.

The General Porcelain Co., a recent New Jersey corporation, will be the holding company, and three rooms for offices have already been rented in a well known business block in East Liverpool. Two Trenton electric porcelain manufacturers are not connected with the deal, and it is said the policy of retrenchment will be followed to the letter in the physical operation of all properties.

High salaried superintendents and managers will be relieved from duty, so report has it, and operation will be concentrated upon one person, probably George O. Anderson, of the Anderson Electric Porcelain Co., of East Liverpool. All business of the new company will be carried on at East Liverpool, although the offices of J. H. Parker & Co., in Boston, will be used as the eastern headquarters.

L. C. Buckley, superintendent of the Thomas Electric Porcelain plant at Lisbon, O., was operated upon for appendicitis at Pittsburgh this week. He will recover.

Four kilns have been added to the Riverside plant of the Wheeling Sanitary Manufacturing Co., and it is possible that another kiln or two will be built by the same company at this plant before the year ends. The cause for these improvements is found in the fact that modern sanitary methods are being installed in all homes being built nowadays.

W. H. Glover, of Sebring, O., is said to be interested in the building of a new pottery at Terre Haute, Ind., and according to officials of the Commercial Club of that city, preliminary contracts for the building of the plant have been agreed upon. What character of ware will be made in the new plant is not announced. Should this plant go through, it will be the second to be built this year—the first having recently been started at Sebring, O., by Fred Sebring, who is building a nine-kiln plant.

A new stoneware pottery may be built at Newton Falls, O., this summer, by a brick manufacturing concern, which has located a large vein of blue clay. It is said this clay is similar to that used by the Crooksville (O.) stoneware potteries.

Another decorating kiln is being built at the plant of the Owens China Co., at Minerva, O. Charles Foreman, who has been in charge of the sales department of this plant several years, has recently been re-elected for another twelve months.

Once more the old Bell pottery at Worthing, just north of Columbus, O., has come to the front, this time from the courts. Judge E. B. Dillon, of Franklin county, has allowed the creditors of this company a dividend of 6½ per cent. Attorneys in the affair, however, have been allowed $750 for their fees to date. The pottery is idle, and no intimation is given when it will be started.

At New Castle, Pa., the Shenango China Co. has completed the last of a shipment of $15,000 worth of underglaze vitreous hotel ware to the Federal Government. For many years all the dinner ware used on the battleships for officers' mess rooms was from foreign potteries, which is fortunately not now the case.

Manufacturing potters, of the western district, have started to order new dinner shapes which are expected to be ready for the trade, not later than June. The orders for these shapes have been placed by the West End Pottery Co., East Liverpool, O.; W. S. George Pottery Co., East Palestine, O.; Crooksville China Co., Crooksville, O., and the Warwick China Co., of Wheeling, will show a new vitreous china shape. In every instance these new dinner shapes are plain ones, the demand for the fancy dinner shapes, it appears, is growing less every year, the popular fancy being for conventional designs.

# SAND LIME DEPARTMENT

## BEHIND ON ORDERS.

In a recent communication, the Saginaw Sandstone Brick Co. stated that it was four months behind with its orders and has excellent prospects for keeping its plant running full capacity during the remainder of the season. The company has been making several changes in its plant, including the addition of an elevator and conveyor for storing a supply of sand, ample to run the factory during the winter. The plant is now making between 32,000 and 33,000 brick per day, which is the full capacity of its cylinders. The company is planning to have these cylinders lengthened, or put in additional ones, to increase the capacity, before another season. The brick used in the handsome bank building, shown in the accompanying illustration, were made by this company.

## SAND-LIME BRICK IN CHINA.

The formal opening of the Yue Yick Sand-Lime Brick Co.'s factory at Mut Li Sha, a village on an estuary of the West river, about midway between Canton and Fatshan, took place on March 8, 9 and 11.

The event was made impressive by the presence of many important Chinese officials and merchants.

The Yue Yick sand-lime brick factory, said to be the first of its kind in China, was started some three years ago and has been in successful operation ever since and is a purely Chinese mercantile undertaking. It stands on the bank of a narrow but navigable creek, which admits of steam launches and tows coming alongside the stone steps that lead up from the water to the factory grounds. It draws its sand from the immediate vicinity and its limestone from near Ying Tak on the North river, and depends, inward and outward, upon water communication.

The establishment covers a large area and includes besides the plant, a reception hall and residences for its foreign engineer and native staff. Its machinery and apparatus are of the most up-to-date character, entirely of German make, and were supplied by a German firm in Canton. The working force consists of a British engineer and about 100 Chinese. The total capital outlay has been about $200,000.

Five kinds of brick are manufactured, varying in price from $4.05 to $6.30 per 1,000; the capacity each twenty-four hours is 40,000 No. 1 and 60,000 No. 4 brick. A small electric plant has been installed to supply whatever electric power and light are required at the factory.

The fact that the machines are being worked overtime to fill large orders and that the products of the factory have found a ready market during the three years in which it has been in operation testify to the character of the brick.

It is said that considerable additions to the plant are contemplated for the near future.

## NEW SAND LIME PLANT.

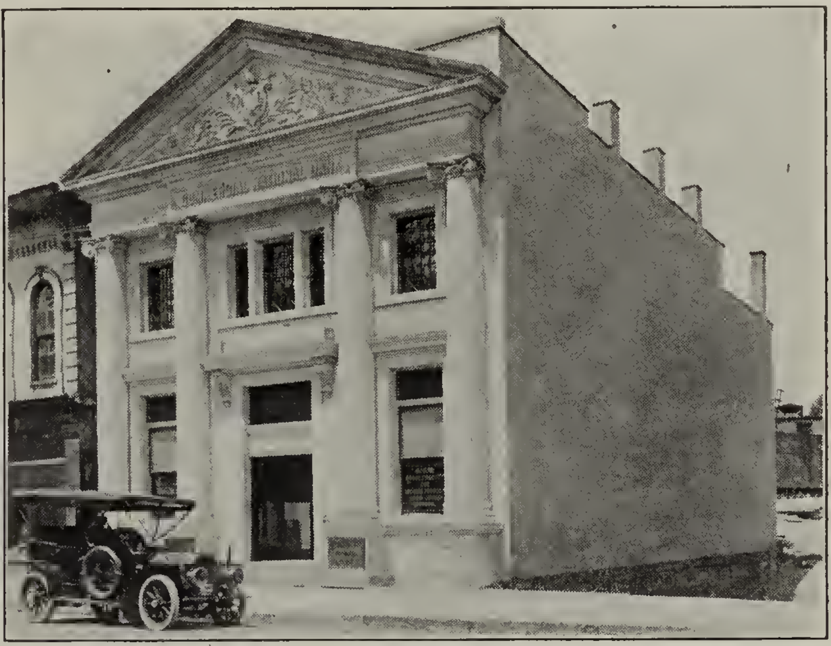
A new sand lime brick plant will soon be started in Kalamazoo, Mich. The company which will operate the plant is composed of stockholders of similar concerns in Grand Rapids and Saginaw, besides a number of Kalamazoo men, led by F. D. Fuller. It is planned to build a factory which will have an initial capacity of between 40,000 and 50,000 brick a day the year round. The building will be 100x130 feet.

## SAND LIME NOTES.

The Golden Gate Brick Co., San Francisco, C. F. Pratt manager, is having a lively business in its Golden Gate sand-lime brick this spring. The largest order is for a club house to be erected in conjunction with the Southern Pacific Hospital, being a memorial given by Mrs. Collis P. Huntington.

A brick stack 80 ft. high has been erected at the plant of the Sand Lime Brick Co., at Farmington, Conn.

The New England Brick Co., of Hartford, Conn., will soon begin the manufacture of sand-lime brick of high quality, at Farmington. The company is now installing the necessary machinery at a plant on the New Haven & Northampton Line.



The Brick In This $60,000 Bank Building at Saginaw, W. S., Mich., Were Made by the Saginaw Sand Stone Brick Co.

## NEW MASSACHUSETTS PLANT.

Land has been secured at Indian Orchard, Mass., to accommodate the Bay State Sand Lime Brick Co., which is to locate in the Orchard. This company was formed recently and is incorporated under the laws of Massachusetts.

The company will manufacture sand lime brick for ornamental building purposes. It is planned to start the machines making brick by July 1 and the concern will employ betweeen twenty-five and fifty hands. It is said the location of the factory at this point will open up a section hitherto considered as waste land.

## BUSINESS INCREASING.

A Buffalo (N. Y.) concern which is handling sand lime brick is the Buffalo Sandstone Brick Co. of which R. F. Kreinheder is president. This company puts an excellent quality of brick on the market and is said to have an original process of manufacture.

The Buffalo Sandstone Brick Co. increased its sales 100 per cent in 1910 over 1909, and prospects are very good for a like increase this year.

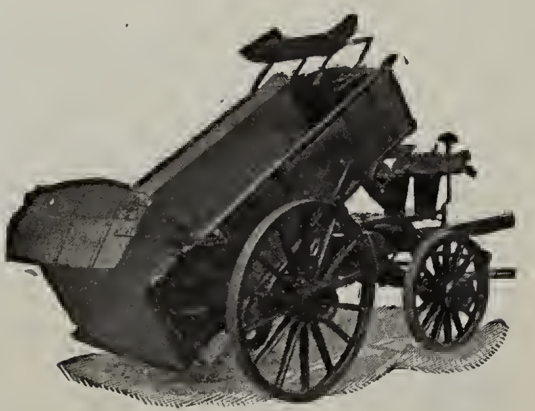
# BRICK DELIVERY

## New Rear Dump Car Makes Speedy and Safe Delivery of Brick Possible—Reduces Expenses and Lessens Breakage

Following the modern way of doing business, manufacturers and dealers in brick are giving more and more attention to the small details which contribute to a successful business. They have learned that success in selling depends upon something more than ability to furnish a satisfactory product and more than mere salesmanship. The whole idea is now embodied in the one word "service."

It is true that the quality of the product is the main thing to be considered; yet at the same time it must be remembered that where there is competition, and the character of the product is similar, the difference in successful selling and successful business lies in the attention given by the manufacturer or dealer to the service which he renders contractors, builders and buyers of brick.

None of these details of satisfactory service is more important than the prompt and careful delivery of brick on the job. The brickmaker or dealer who can deliver the largest loads, and deliver his brick with the least damage and in the most satisfactory manner, is the man who will get the business — other things being equal.



It can therefore be seen that the matter of wagons for the delivery of brick is one of great importance to every manufacturer and dealer, and it behooves the enterprising brick seller today to have nothing but the best. It will therefore be of interest to know just what constitutes the best sort of a delivery wagon.

Some brickmakers may have the idea that the best kind of a wagon is simply the one which can carry the largest load, but while this requisite is important it does not by any means cover all the necessary requirements. The matter of time in loading and unloading should have even greater consideration. If all the time lost unnecessarily in loading and unloading brick during the season was figured out, the actual cost in dollars and cents would make a somewhat stupendous figure for any seller of brick. The wagon which will permit the quickest loading and unloading therefore becomes a paying investment, and such a wagon should save its own cost in one season. Of course the only practical brick delivery wagon is one which dumps at the rear—the box being tilted so that the rear end of the wagon touches the ground, and as the wagon is drawn forward, leaves the brick stacked up in good shape and without injury. The old method of tossing the brick by hand from the wagon is obsolete, and the up-to-date seller now requires a wagon which can be hauled to any part of the job, and which is so flexible that it can be turned in a small space, and can be handled over rough ground with ease; and which will dump its load just where the foreman on the job wants it.

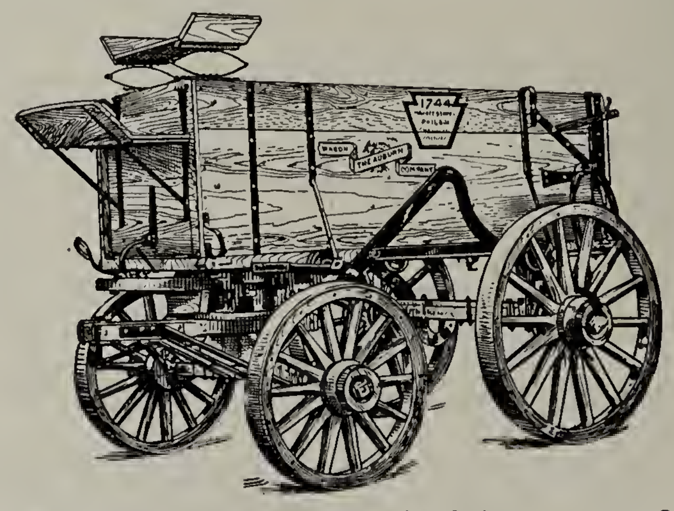
Other important considerations are the durability and wearing qualities of the wagon. A brick delivery wagon is frequently used for other purposes, and should be built of such material and in such a manner as to be practically indestructible, under the hardest kind of usage. In such a wagon only the very best of seasoned wood should be used, and the axles should be unbreakable. The dumping mechanism should be simple and yet strong and dependable.

Another feature to be considered is the advertising value of a fine delivery wagon, which has a handsome business-like appearance. It does not pay the brick seller to send his brick through the streets and to the job in an old, battered, seedy looking wagon. A wagon, built for the purpose, handsomely painted and well taken care of, with the name of the brick manufacturer or dealer prominently displayed on the side, should be a profitable and constant advertisement of value; and such a wagon will give the impression of efficiency and up-to-dateness, tending to arouse confidence in the firm which owns same.

It is remarkable that none of the makers of wagons or manufacturers of brickmaking equipment have heretofore put such a wagon on the market, and the brick men have been obliged to take what they could find in the local market without regard to their special needs. It is pleasant therefore to note that the well-known Auburn Wagon Co., of Martinsburg, W. Va., the largest independent wagon manufacturer in the country, has perfected a rear-dump brick wagon, and is manufacturing same for the particular needs of the brick trade.

The accompanying illustrations show the Martinsburg Automatic Rear Dump Brick Wagon, and from them it can be seen that this wagon is built with careful regard to the particular needs of this trade as described above. The loads that this wagon can carry are only limited by the ability of the horses hauling same. Its sides can be built up as shown in the picture, so that if required a load of 2,000 brick can be handled, or it is fitted with the flare boards as shown in the second picture, illustrating the wagon box tilted for unloading. The ordinary load, however, is from 1,000 to 1,500 brick —this, with the wagon, giving a sufficient load for the ordinary team, especially if the haul is for some distance.

In the construction of the Martinsburg Brick Wagon only the very highest class of material is used. The axles are of solid steel, and are guaranteed by the manufacturers. The size of the front axle is 2¼ and of the rear axle 2½ inches. The front wheels are 3 ft. in diameter, and the rear wheels 4 ft. The width of the tires is 4 in., thus giving a wide track and permitting heavier loads than is possible with narrow tires. The body is 8 ft. in length by 3 ft. 3 in. in width at the rear, it being slightly narrower in front, thus permitting the load to slide out more readily.



Rear Dump Wagon, Made by the Auburn Wagon Co.

This brick wagon is close coupled, of light drive, simple in construction and is easily dumped. It is without doubt the newest, latest and best wagon on the market for this purpose. The wagon presents a very handsome appearance, being painted with the gear red and the body a dark green, the name of the owner being nicely lettered on the side.

It is to be noted, as before stated, that the manufacturers give an absolute guarantee on the axles of this wagon, and this guarantee holds good no matter what the load may weigh or the circumstances under which the wagon is used.

The wood employed in the construction of the Martinsburg brick wagon is the best that can be obtained, and is carefully seasoned in the works at Martinsburg for a long period before its use. The wheels of these wagons are given careful attention, the spokes and rims being made of solid white oak. The rear end gate lifts automatically for dumping, but is also hinged to operate by hand, independently.

The Martinsburg brick wagon is already in use by many brick manufacturers and dealers throughout the country, and has given the utmost satisfaction, and we anticipate that it will have large sales in the future, as it seems to supply a long-felt want of the brick manufacturers and dealers.

## MEANS ENGINEERING & FOUNDRY CO.

The Means Engineering & Foundry Co. was organized in June, 1909, and incorporated under the laws of the state of Ohio, with a capital stock of $75,000. The new company took over the buildings of the Means Foundry & Machine Co., Steubenville, Ohio, and the Toronto Machine Co., Toronto, Ohio, the former company having been in business manufacturing sewer pipe and brick machinery something over fifty years. The business has continued along the same lines, with additions to patterns and drawings, owned by the former company.

Extensive Works of the Means Engineering & Foundry Co.

The company now manufactures dry pans, wet pans, pug mills, sewer pipe presses, elevators, conveyors and dies for the manufacture of brick, sewer pipe, flue lining, conduits, fire proofing, drain tile, together with a full line of trucks, wheelbarrows, mine cars, drier cars, transfers, and articles necessary for the manufacture and handling of brick and sewer pipe.

The new plant consists of a machine shop, 60 x 135 feet; foundry, 60 x 120 feet; pattern shop, 40 x 165 feet; cleaning room, 40 x 50 feet, and blacksmith shop, 30 x 40 feet, together with the necessary office and storage rooms. These buildings are all constructed of brick and steel. The foundry and machine shop are equipped with a 10-h. p. traveling crane. The power used is derived from a 50-h.p. gas engine for the machine shop and a 35-h.p. engine in the foundry. The machines are all new and up to date and are well equipped for handling castings and machining up to ten tons. In addition to its regular line of brick and clay machinery the company is doing considerable mill work in manufacturing contractors' sewer castings.

The Means company has now been in operation a little over a year and reports a very successful business during that time, with the general outlook good. It has, during the last year, furnished the machinery for three complete sewer pipe plants which are considered among the most up-to-date plants in the Ohio district.

The officers of the company are: Thomas Price, president; W. B. Goucher vice-president, C. A. Wells, treasurer and assistant secretary, and George P. Wilson, secretary and general manager.

## BUSY TEXAS PLANT.

The Malakoff Press Brick Co., at Fort Worth, Texas, is said to be the only plant in Texas which makes a stiff-mud repressed face brick. The clay, having a large amount of natural iron in its composition, makes it possible for the company to make brick in an endless variety of shades, ranging from a pure white to a shade almost coal black.

The brick have been tested by the University of Texas and withstood a pressure of 77,850 lb.; the absorption test ranging from 3 to 1 per cent., depending on the grade of the brick.

The Malakoff company also manufacture the popular rough surface brick, similar to the Antique, Oriental and Tapestry effects and reports an increasing demand for this class of brick. It is the intention of the company to add more kilns, and plans are being considered for the installation of machinery for making tile.

Being located near the Powell oil fields, oil is procured at a cost of from 80 to 90 cents per barrel; wood is procured at $2.00 a cord, as the surrounding country is heavily wooded. The company reports business prospects good throughout the state.

## NEWS NOTES.

The capital stock of the Art Clay Manufacturing Co., of Zanesville, O., has been increased to $105,000.

The capital stock of the H. B. Milliken Sewer Pipe Co., of Louisville, Ky., has been increased from $5,000 to $15,000.

The Stockdale Tile & Brick Co., a Zanesville corporation, has been chartered here with $10,000. Incorporators are William E., Philip, Ralph E. Stockdale, Ralph R. Gillespie and William R. Bowers. The company proposes to manufacture brick and tile and will build a new plant at Carrothers, O., which is in Seneca county. Mr. Gillespie and R. W. Stockdale will remove from Zanesville to Carrothers to manage the new property.

## Conditions from the Atlantic to the Pacific as Reported by Our Expert Observers—Market Fluctuations and Industrial Prospects

### SPARKS FROM THE WIRE.

The Boosters' Club, of Spirit Lake, Ia., are offering inducements for the establishing of a drain tile plant at that place. It is said that the demand for tile is very great at that point and land which has been tiled has increased in value from $75 to $125 per acre.

It is said improvements are to be installed at the plant of the Albion (Ill.) Shale Brick Co., which will cost $200,000.

The Clay Products Co., at Wickliffe, Ky., of which J. A. Hines is president, are in the market to purchase machinery for manufacturing stoneware, tile, etc.

The Herrick Brick & Tile Co. is a new incorporation at Cleveland, O., recently organized by T. A. Herrick, H. A. Howard, M. L. Buelow, N. R. Wind and R. J. W. Kline.

The Finzes Bros. Clay Co., of Shanesville, O., has increased its capital stock from $10,000 to $15,000.

The By-State Brick & Stone Co. has been reorganized at Springfield, Mass., with a capital stock of $75,000. The president is A. G. Grant, of Boston; the treasurer is C. M. Field, of Rutherford, N. J.

The Sibley-Menge Brick Co., at Birmingham, Ala., has added to its already large plant, facilities for the manufacture of common brick.

The Plant City (Fla.) brick factory was almost completely destroyed by fire, which originated from quick lime stored in the plant. The plant was valued at $45,000 and only $8,000 insurance was carried. The plant had been in operation for four years and was just getting on a paying basis. Whether it will be rebuilt or not has not yet been decided on.

Five buildings comprising the plant of the Hancock Shale Brick Co., at Hagerstown, Md., were destroyed by fire recently. The plant was valued at $35,000 and was well equipped with machinery. The insurance was only $7,000.

At El Campo, Tex., a site for a brick yard has been donated and a bonus raised to further the enterprise.

The Sykes brick plant at Hampton, Ill., was visited by a fire which destroyed the engine room and sheds and valuable tools, causing a loss of $3,000.

The Betterware Pottery Co. has been organized by N. S. Buhne and others at Zanesville, O., with a capital stock of $10,000.

A company has been formed at Baker, Ore., to engage in the manufacture of pottery and clay products. Prominent men of the city, with L. A. Gossett at the head, are promoting the project.

At Zumbrota, Minn., a rich bed of shale has been discovered, which is said to equal the famous Pennsylvania clay. A factory will be erected, midway between the "Twin Cities," where the clay will be shipped.

W. H. and J. E. Seavey, W. D. Davis, S. E. Moreton and C. B. Perkins will take over the old brick plant formerly operated by A. C. Seavey & Sons, at Brookhaven, Miss. The latest-made hydraulic press brick machinery will be installed for the manufacture of both face and building brick.

The Architectural Terra Cotta Co. has been reorganized at Athens, O., with a capital stock of $10,000 by William, James, Samuel and Joseph Ruston and William Truman.

The Wheeler & Stern Co., Charlotte, N. C., want prices on glazed tile and terra cotta.

Mr. John Madsen has sold a half-interest in his brick yard at Bernamwood, Wis., to Mr. Fred Ziek.

The Haywarden (Ia.) Commercial Club is making an effort to locate a brick plant at that place. They have had tests made of the clay which have proven very satisfactory.

Anthony Hochgesang & Sons have bought the brick plant of Wm. Giesler at Jasper, Ind.

A charter will be granted at Harrisburg, June 5, to the Pittsburgh Conduit Co., which concern is also asking for the right to manufacture brick and other clay products. H. S. McCandless, T. M. Gealey, and G. C. Kiskaddon have applied for the charter through Attorneys Moore, Gealey and Petty, of the Frick Building, Pittsburgh.

Ground has been broken at Wanamingo, Minn., for the construction of a plant, estimated to cost $200,000, for the Barr Clay Product Co., for the manufacture of hollow building block, drain tile and other clay products.

The Franz Woerfel Brick Co., of Manitowoc, Wis., has absorbed the plant and yards of the Boettcher Brick & Tile Co., adjoining its yards just west of the city.

The stockholders of the Mechanicville (N. Y.) S. S. Brick Co., held a meeting recently for the purpose of increasing the capital stock of the company from $125,000 to $150,000.

The Government of New South Wales has decided to embark in the brick-making industry. Works are to be erected on Homebush Bay, where there is said to be a deposit of the best quality of blue shale 40 feet in depth. The works are expected to be completed in about twelve months.

The brickmaking plant of Burnham Bros., of Watertown, Wis., was struck by lightning and damaged to the extent of $10,000.

The Fond du Lac Pressed Brick Co., of Fond du Lac, Wis., has started its plant for the season and will turn out 40,000 brick daily. Improvements aggregating $3,000 and including a new wire cut machine have been installed.

### THE SMOKY CITY.

Pittsburgh, Pa., June 9.—In all clay product lines represented in the Pittsburgh district, business is declared to have been very satisfactory during May. There is some quietude existing in the refractory lines, because the steel and iron mills and furnaces are not being operated to capacity. When it comes to building and paving brick business, some nice orders are being booked, sufficient, in fact, in some instances to keep plants in active operation for months to come.

An important change in salesmen was announced in this district during the last few days. E. A. McKelvey, formerly salesman for the Pittsburgh district for the Harbison-Walker Refractories Co., and R. A. MacDonald, with the same company, but traveling in western Pennsylvania and Ohio, have severed their connection with that firm and will hereafter represent the General Refractories Co., an eastern concern, which is seeking to increase its business in these parts. The new firm has opened a suite of offices in the Henry W. Oliver building. All the Pittsburgh and western business will be handled through the Pittsburgh offices for the General Refractory Co.'s interests. The eastern company manufactures a general line of refractory products and the indications promise some big business for the new representatives.

Machinery for the new brick plant which is being erected at Elwood City, Pa., is being placed in position, two carloads having been delivered a fortnight ago. Because of the character of the clay to be used in this plant, it is reported the kilns will stand less firing than is generally the case.

Some very good contracts for ornamental terra cotta have recently been booked by the Atlantic Terra Cotta

Co., Pittsburgh offices of which are in the Fulton building. These orders include a new six-story hotel at Akron, O.; new municipal water pumping station for Pittsburgh; and a seven-story department store which is going up in Dayton, O. This form of clay products is increasing in use every year, and the Atlantic company is certainly getting its share of the business.

Secretary Hamilton Stewart, of the Harbison-Walker Refractories Co., of the Farmers' Bank building, has announced to stockholders that the Board of Directors have declared a dividend of one-half of one per cent on common stock June 1, payable to holders of record on May 20.

Fire caused a damage of about $8,000 to the plant of the Pittsburgh Clay Pot Co. a few weeks ago. The fire started in the machinery room. Considerable finished material was destroyed.

The tone of the brick market has picked up during the last fortnight and prices have a higher tendency, according to reports received here from eastern sales offices. Even the Hudson river brick have advanced 25 and 50 cents.

The reorganization of the Mountville Brick Co. was completed at a meeting held at Lancaster, Pa., and the following officers have been chosen: President, C. C. Seitz; vice-president, A. B. Landis; secretary, H. R. Seitz; treasurer, A. B. Kready. The latter was also elected general manager of the plant. This company has recently increased its capacity by installing some additional improved machinery and is making a feature of prompt deliveries.

The S. H. Yoder brick plant at Blandon, near Lebanon, Pa., has resumed operations after an idleness lasting several months.

Operations have been resumed by the Pine Grove Vitrified Brick Co. at Pine Grove, Pa. The works have been idle for some time.

Thirty houses, costing from $12,000 to $15,000 each, are to be erected for a client by Architects Janssen & Abbott, of this city, in the West End section. The bulk of the construction will be of brick.

The plant of the Silica Brick Co., at Claysburg, Pa., is now in active operation, and has a capacity of 100,000 per diem. In order to get additional raw material, another 10-acre tract was staked off by engineers.

The sale of 55 acres of the property of the Sharon (Pa.) Firebrick Co. has been completed, the land having been purchased by W. G. Green for $4,500.

## CONDITIONS IMPROVING AT LOUISVILLE.

Louisville, Ky., June 13.—The atmosphere in the world of brick in Louisville and Kentucky is clearing up considerably, and as soon as the aggressive advertising campaign of the manufacturers progresses a bit further it is promised that this atmosphere will be pungent with optimism. Everything looks good to the brick men at present, for after months of tribulation and watching diminishing daily delivery sheets, the wheel of commercial fortune has changed and the clay-working industry is "coming back" with a vengeance.

Viewing the situation comprehensively, it is probable that conditions are every bit as good at present as they were in June, 1910, although the reports of one or two operatives indicate that this month is not opening up in the rapid-fire, slap-bang style of the days when competitive building materials were unknown. The dissenting voice, however, comes from the older members of the fraternity, who are inclined toward silvery retrospects rather than toward golden prospects. The injunction contained in the last issue of "Brick and Clay Record" anent working like hell and advertising is being carried out to the letter, and the fruits of this endeavor are absolutely inevitable, so the brick men are wearing the smile that won't come off and are universally delighted with improving trade.

One of the best-known brick men in Louisville said a short time ago that one of the most satisfactory phases of the business at present is the way in which brick is regaining its hold on popular favor in the way of important residential construction. This tendency is generally conceded to be a forerunner of city-wide and comprehensive demand for brick residences as soon as the Kentucky public, which has Missourian tendencies, has been "shown" wherein the advantages of brick construction lie. Numerous handsome big residences in the eastern sections of Louisville have been made of brick, through absolute specification, during the past month, and of course the clay product has not suffered from competition in the least in apartment house construction, of which there has been a deal in the Falls City this year. Residence jobs calling for 60,000 or 75,000 of good face and hard stock are becoming the rule rather than the exception, showing that while concrete and cement block may have risen in popular esteem for medium-priced houses, the old reliable red brick is in commission for the bigger cuts of pie.

A. Dumesnil, president of the Hydraulic Brick Co., 1329 South Twelfth St., one of the biggest brick manufacturing companes in Louisville, says that, by steady advertising of an effective variety, his company is raising the standard of June, 1911, which otherwise would not be so good as that of June, 1910. The Hydraulic has plenty of stock of all kinds on hand, said Mr. Dumesnil, and the fact that business is running along in good shape offers no opportunity for complaint.

A big steam conveyor system was recently installed at the central yard of the Hydraulic Brick Co., Twelfth St. and St. Louis Ave., in Louisville. The conveyor enables more efficient transportation of shale from cars to the Hydraulic and Chambers presses. It was erected by the Jeffrey Mfg. Co., of Columbus, O.

The Kentucky Vitrified Brick Co., 528 West Jefferson St., of which M. J. Bannon is president, is reported to be doing a good business in the paving line. Mr. Bannon has been making short trips through Kentucky in search of roadway jobs and has been successful in having the vitrified product adjudged superior to any other in numerous instances.

Curtis A. Stout, of the Hydraulic Brick Co., has been making short trips to Eminence, Shelbyville and other "Blue Grass" towns, and has closed some nice building jobs for his company.

A peculiar condition relative to the weather has developed during the past fornight in local brick circles. The manufacturers say that they are having considerable trouble in making deliveries because of the super-tropical heat of the latter part of May and the first part of June. Every day the thermometer registered above the 100 mark and teaming was made extremely difficult, while work in the yards was calculated to tear down the heaviest nerve tissue that could be found in the negro drivers and laborers. The hot weather was better for general building, however, than the rainy days of spring, so no one is "kicking" very strenuously.

The plant of the Louisville Brick Co., at Thirty-eighth St. and Rudd Ave., has been running on full schedule during the past month, according to President Joseph Nevin. Building and paving business rank about equal, said Mr. Nevin, with the general volume normal, for this time of the year.

The Louisville Building Brick Association, composed of nearly all the brick manufacturers and a number of the brick contractors of the Gateway City, has been holding semi-monthly meetings on Tuesday evenings in the offices of Owen Tyler in the Tyler building. While carrying on its up-to-date advertising scheme, the local organization proposes to effect some changes in the "City Building Code," if possible. These changes will give brick construction additional advantages in the eyes of the prospective builder. T. Bishop, secretary of the association, said that definite news concerning the proposed code changes could not be given out at present, although the club is hard at work on the project and will probably have some interesting announcements to make in the near future.

T. Bishop, of the Southern Brick & Tile Co., at Thirteenth St. and Ormsby Ave., told a representative of "Brick and Clay Record" that business affairs had been breaking in fine fashion for his firm during the month. "All kinds of building brick are moving excellently," said Mr. Bishop, "while the tile business is growing rapidly enough to necessitate extensions." The improvements, at this plant, consist of the addition of a down-draft kiln of 50,000 4-inch tile capacity and the erection of a big tile stock shed, 150 by 25 ft. in dimension and two stories high.

Owen Tyler, a well-known "Hydraulic Press-Brick" man of this city, who is erecting a big eight-story hotel on the northeast corner of Third Ave. and Jefferson St., is a firm believer in co-operation between the workmen and employer. In erecting his new hostelry, therefore, Mr. Tyler rushed the brick work along by offering a premium to the masons on the job. He announced to the wielders of the trowel and hammer that they would be guests at a big dinner at the Old Inn if they completed the brick work on the Tyler structure by May 15. Accordingly everybody worked with unusual vigor and the result was that Mr. Tyler paid his forfeit a week or so ago. Thirty-five skilled brick layers sat down to a sumptuous repast at the Old Inn on the eventful occasion, every member of the assemblage being clad in brand-new white overalls, as though starting out on a structural, instead of a gastronomic, job. After the last toast had been given, the masons arose and presented Mr. Tyler with a beautiful silver trowel in token of their esteem.

A jury in Judge Robert Bingham's court a short time ago decided that Patrick Bannon, founder of the Bannon Sewer Pipe Works and the Kentucky Vitrified Brick Co., of Louisville, was of unsound mind prior to his death. The decision was the outcome of a suit brought by Richard Bannon and others against M. Jeff Bannon, alleging that M. J. Bannon exerted undue influence on his father, who was weak-minded, prior to his death and seeking to recover the stock bequeathed. After listening to the testimony the jury returned their verdict for the plaintiff, adjudging Patrick Bannon to have been of unsound mind before his demise. The disposition of the stock now lies in the hands of Judge Bingham.

The Clay Product Co. has been organized at Wickliffe, Ky., by President J. A. Hines to manufacture stoneware and tiling of all kinds. The new concern is capitalized at $10,000 and is in the possession of buildings in which a plant will be established. President Hines is figuring on the purchase of $5,000 worth of clay-working machinery and will have a plant that is up-to-date in every particular.

E. S. Hitchens, of the Olive Hill Fire Brick Co., has announced that his company will establish and put into operation a big brick plant near Elkton Junction, Ky. The point where the manufactory is to be established is rich in shale lands and should provide some fine mineral product for brick manufacture upon an extensive scale. Mr. Hitchens is planning to equip a complete plant, provide houses for workmen and place the nucleus of a little town. It is expected that the new concern will be in complete operation by October 1.

The Barbourville Brick & Tile Co., at Barbourville, Ky., reports business of the land-office variety. The capacity of the Barbourville plant was more than doubled by the addition of supplementary equipment during the dull spring off-season, but the enlarged establishment is hard pressed by the influx of orders, says the report to the correspondent of "Brick and Clay Record." Although Barbourville is not undergoing any unusual building boom, the plant in that city is building up a tremendous trade in surrounding portions of the state and also into Tennessee and Virginia.

## KANSAS CITY.

Kansas City, June 9.—Building operations in Kansas City and the entire Kansas City territory are far below normal for this season of the year, and the only reason advanced for this condition is the timidity of capital. Investors seem to wish to hold on to their money, and the banks are full of it, according to their reports. A good many are inclined to think that building operations will be held up until after the next presidential election to a considerable extent, as there is a general feeling that there will be a change in policy at that time and the people who have money wish to get in touch with the new conditions before letting go.

A number of the men who have been building a large number of houses each year and selling them on the installment plan are not doing much in that direction now, and say that they cannot, as their capital is bound up in second mortgages and they cannot proceed until they get in enough to go ahead, and money from installment sales comes in slowly. It is also said that the demand for houses from the class of people who buy on the installment is slow, the bulk of them already having investments of this kind to take care of.

One builder remarks: "The builders have pretty well loaded up the buying public on installment homes, and this is taking the surplus cash of the buyer from month to month. Another thing which is having a big effect on all kinds of business is the great activity in the past of the life insurance agents. These people have written thousands of endowment and other kinds of policies, and men who are carrying them are putting most of their surplus there, so instead of being able to buy houses they are held down to the life insurance and the company in the East which has the business is controlling this vast amount of money and investing it wherever it pleases. Some of these same men have also invested in automobiles, and the insurance and the automobiles together keep them broke most of the time, even though they may be drawing large salaries. I understand from life insurance agents that there never has been a time in their experience when so many policies have been cashed in, and they are blaming the automobile for this."

It is now stated that the foundation work on the new Union Depot will be begun by July, the excavation is now nearing completion, and this should give the investors who contemplate erection of buildings in this new business district an idea of what they should do. They will, of course, want their buildings ready for occupancy by the time the depot is ready, as there is no use having them ready much in advance, and after the foundation is started they can make a closer estimate of the time it will take to finish the building. There is no question but what building operations in this particular section of the city will be very heavy in the next couple of years, for few of the buildings already there will be suitable for the class of tenants who will want locations in that neighborhood.

Kansas City is expecting some big results from the operation of the boat line of the Missouri river. This boat line has been financed here in a manner to give plenty of capital, and the management is going about its work in a manner to inspire every confidence. A good sized fleet of boats has been purchased of a type especially suited to Missouri river conditions and they have contracts for a certain percentage of the freight of most of the big shippers, thus making regularity of business a sure thing. A number of big industries located further East have been watching this boat line and if it succeeds in lowering the freight rates as it will if it can operate with regularity, because it only charges about 75 per cent of the railroad freight rate from the Mississippi river, they will locate here and bring in their raw material by boat.

One contractor made the prediction that within a few years there would be a great influx of manufacturing plants here, and gave as his reason the fact that with a means of getting the raw material here cheap this city was the best located for enterprises of that kind, being central, so all territory covered could be reached more promptly and with a lower freight rate. Then it is further from the borders of the country, where reciprocity legislation would have its greatest effect, and close to the great food producing part of the United States, which is not affected by the stock markets of Wall street nearly as much as more Eastern points.

Local brick plants are now turning out a considerably increased output, and are able to place everything to the present time. Jobbers of outside brick are also reporting a very good business, both in the city and outside. It seems from their report that a larger percentage of the building material used at this time is brick. They all expect a dull business later, however, unless there is more building activity, for all plants are now turning out brick and the production is going to be larger than the demand. This will make bad conditions for the manufacturer. Prices to the present time have not declined, but it is expected within another month that the local manufacturers will take virtual control of the market by reducing the price to the point where outsiders will find it more profitable to market their product elsewhere.

C. C. Frampton and H. A. Clapp are organizing a brick company to develop shale deposits near Corpus Christi, Tex.

The Lafayette Coal & Brick Co. has been incorporated in Kansas City, Mo., with a capital stock of $150,000, by Homer P. Allen, S. E. Snyder and J. E. Wilson.

The Star Pottery Works, of Elmendorf, Tex., is enlarging its plant, and will go after the fire brick business of that section of the country.

The Fairview Brick Co., of Denver, Colo., has purchased of John B. Church the controlling interest in the Golden Pressed & Fire Brick Co., in Golden, Colo.

The Colorado Pressed Brick Co. has been incorporated with a capital of $50,000, and has purchased the plant of the Colorado Brick & Tile Co. in Colorado Springs, Colo.

The Gulf States Brick Co., of Beaumont, Tex., is reported about to install machinery for the manufacture of hollow building tile and drain tile.

## LOUISIANA NEWS.

New Orleans, La., June 12.—It was thought probable for a time that the two big concerns, the Salmen Brick & Lumber Co. and the Mutual Brick & Supply Co., which control the trade of New Orleans, would have opposition in the entry of the Riverside Brick & Manufacturing Co., an independent concern of Hattiesburg, Miss., but these rumors were finally put at rest when on May 16 P. L. Gaston, secretary-treasurer of the Riverside company, stated that his company was at present unable to go into the New Orleans market. No reason was assigned by Mr. Gaston for the decision of his concern not to enter the local trade, nor did W. S. Morrison, president and manager of the company, assign any reason.

Hattiesburg has rail connection with New Orleans by both the New Orleans and Northwestern Railroad Cos., known as the Queen and Crescent Route, and by the New Orleans and Great Northern Railroad or "Ozone Route," as it is termed, and thus it would appear that competitive freight rates could easily be secured, rates which while they might not be as low as the Illinois Central Railroad Co. accords the plants that comprise the association which has its selling agency under the name of the Mutual, yet expereienced railroad men were of the opinion that the independent company could have secured an entry into New Orleans at a low enough rate to at least compete for some of the "juicy" contracts continually being let. Of course prompt deliveries and an output large enough to deliver large quantities of brick when specified were factors but it is understood that the Hattiesburg plant not only had an output large enough to meet any ordinary demands but was in a position to increase the output if desired. In the matter of making expeditious deliveries it was asserted that this too had been arranged for by a local handler of brick, who was to have acted as the company's New Orleans representative, and the final decision of the Riverside people not to enter the field at the Crescent City has caused considerable disappointment among the contractors who must still place their orders, almost without exception with the Mutual or Salmen people.

Machinery is being installed at the new plant of the Sulligent (Ala.) Brick & Manufacturing Co.

## OUR PACIFIC COAST LETTER.

San Francisco, June 11.—Several building jobs of rather more than usual importance are now in the market in San Francisco and Oakland, but the contracts may not be awarded for two or three weeks. Hardly anything worthy of special mention has been let for the last month, and according to official reports the total value of building operations started last month was rather less than for March, yet according to reports from dealers in building materials, based on orders actually taken, work is more active at present than at any time in the last two or three years. Several small jobs are coming out nearly every day, the architects are extremely busy on new work, and with every indication that a number of large buildings will come out in June things certainly look good for the brick interests. Locally the great majority of the work is in permanent materials, and while other materials than brick are used to a considerable extent, practically all the better structures are faced with pressed brick or terra cotta.

The situation of the market on common brick is summarized as follows by W. W. Dennis of the McNear Brick Agency: "It is beginning to look as if we can anticipate a slow but steady improvement in the common brick business. The price has already advanced from $6.50 a month ago to $6.75 per M., f. o. b. cars or wharf, San Francisco. The amount of new work being figured is very encouraging, and it is especially gratifying to note that the percentage on which contracts are being let is much larger than for a long time past. For this reason we believe that the active demand for common brick will be more lasting than the temporary spurts experienced at various times in the last few years, as there is no boom tendency, but a steady and healthy growth. While we do not expect brick to advance above $7 per M. this year, there has been such an improvement over conditions of the last two years that manufacturers are highly pleased. We do not believe that conditions are such as to warrant all the outside yards in starting up at full capacity and shipping brick to San Francisco, but present conditions will prove very beneficial to the yards within easy distance of this market, which can make a fair profit on brick sold at $7.00 in this city."

The McNear Brick Co., Mr. Dennis says, is now making about 100,000 brick a day, and the output is kept well cleaned up.

Aside from local conditions, the demand continues active in the interior towns of the state, where many public buildings, lodge halls, banks, etc., are being built, and some manufacturers around the Bay report recent shipments to the Hawaiian Islands. In parts of Southern California conditions are hardly so good, and prices around Los Angeles are comparatively low. This is due rather to the large production than to lack of demand, as building operations in Los Angeles and vicinity are unusually active.

The call for pressed brick and terra cotta has also increased materially in the last few weeks, notwithstanding the absence of large individual contracts. Some of the factories, making this material, are now working very close to capacity, and while some of the larger plants could still accommodate a great deal more work all are busier than for some time past.

The largest job which has been figured of late is the Oakland City Hall. This will require about 4,000,000 common brick, including hollow partition tile, and the material will probably be furnished by the McNear Brick Co., as most of the bricklaying contractors made figures with its material as a basis. It is noteworthy that Gladding, McBean & Co., who manufacture only press brick and terra cotta, put in a bid for all brickwork, this being the first time this company has undertaken a job of this nature. The bids on the entire structure were in excess of the money appropriated, and new figures may be taken, but it is believed that more money will be raised and the job put through on the present basis. Several alternative propositions have been made, in regard to brick and stone work, and in order to bring down the cost it is anticipated that terra cotta may be substituted for some of the stone work.

The large First Church of Christ, Scientist, in this city, is rapidly approaching completion. The facing of rustic brick and polychrome terra cotta, made by N. Clark & Sons, has already been greatly admired. N. Clark & Sons are now making terra cotta in a number of new and beautiful shades and glazes, samples of which in tile form are shown at the local office. This company reports a steady influx of small orders, which are keeping the plant in Alameda well occupied.

The first kiln of the season at the plant of the Ione Fire Brick Co. was opened May 18, and the product is fully up to expectations. About half the output for the season has already been disposed of on contract, and it is believed that the remainder will find a ready demand.

The United Materials Co. has been practically snowed under with orders in the last few weeks, having disposed of the output of the Port Costa Brick Works for some time to come, and getting a larger amount of business for the Los Angeles Pressed Brick Co. than for many months past.

The oil industry, in California, is in a comparatively dull condition at present, but the numerous refineries are in the market for large quantities of fire brick, and the low price of oil fuel is also helping the fire brick interests. The Standard Oil Co., in addition to its improvements to the Richmond, Cal., refinery, is preparing to install a large plant near Los Angeles, which will require a large quantity of brick, and will probably be under way in a short time. Manufacturers of steel are also taking quite a lot of fire brick. The Pacific Coast Steel Co. is working on a large open-hearth plant in South San Francisco, and the Rudgear-Merle Co., of this city, has just completed a furnace for its rolling mill, while several steel casting plants, recently installed, are in the market a good part of the time.

It is reported that James Tiffany, of Trenton, N. J., has been negotiating with the Chamber of Commerce of Napa, Cal., in regard to the establishment of a pottery plant in that city.

The stockholders of the Livermore, Cal., Fire Brick Co. will hold a special meeting, July 18, for the purpose of increasing the capital stock from $100,000 to $150,000. This company has started off in good shape, and the apparent prospects of a growing business make it seem desirable to install a number of improvements which have not been possible with the former capital.

The Pacific Brick Co., San Pedro, Cal., reports a busy season, and has been producing an average of 14,000 brick daily.

It is announced that plans for the new St. Luke's Hospital building in this city will be completed within the next two months, and construction is to be started as soon as possible. It will be a Class A structure, the exterior being faced with yellow pressed brick, with cream-colored terra cotta ornamental work.

The large clayworking plant of the Silicia Brick Co., near Sacramento, Cal., is now about complete. All the machinery for the manufacture of pressed brick is on the ground, the main building is about complete, and the kilns are being erected. Owing to the recent rapid increase in the use of brick through the Sacramento valley, the management anticipates a ready market for the entire output of the plant.

The city of Oakland, Cal., has voted for a large bond issue which will involve the use of a large quantity of brick. Of the money raised, $1,755,900 will be used for new primary schools, $738,000 for high schools, and $500,000 for a municipal auditorium.

The plant of the California Pressed Brick Co. at Niles, Cal., closed down about a week ago, the reported reason being labor troubles.

The West Side Brick Co., which has been installing a plant near Pentland Junction in the oil fields, is now about ready for business, and will start up in a few weeks with a capacity of about 60,000 a week. The company has a good clay bed, with convenient railroad facilities. Owing to the fact that lumber must be shipped long distances to the oil country, there is a good demand for all kinds of brick, and the supply has heretofore been limited. Lack of water has formerly been something of a drawback to the establishment of kilns, but the new company has arranged to get a supply from a firm which supplies the oil wells.

G. M. LaShell, who recently resigned after serving for six months as manager for the Long Beach (Cal.) Brick Works, has taken the management of the Contractors' Supply Co., a new firm in that city. The company has opened an office and warehouse, and is doing a general retail building material business, handling brick, lime, cement, gravel, etc. This is the first establishment of the kind in Long Beach.

The Long Beach Brick Works, which has been closed down for about two months, has been leased by J. Y. Parker, formerly of Colorado, and is about to resume operations.

J. D. Wade is promoting a new pressed brick project at Los Angeles.

The Sacramento, Cal., Sandstone Brick Co., a sand-lime concern, is resuming work with increased facilities. The plant was idle during the prolonged rainy season last winter, but it is believed that the new improvements will enable it to continue work throughout the coming winter.

B. S. Baine has been working on a project to start a brick and terra cotta plant at Sutherlin, Ore.

There has been some talk recently of the establishment of a new brickyard at Salem, Ore.

Christian Hoffman, of Oakland, has started suit at Fairfield, Cal., against the Hyfire Brick Co., of Vallejo, Cal., to foreclose a mortgage for $13,500, which was executed by the defendant to the Oakland Bank of Savings and later assigned to the plaintiff. The company's property includes 100 acres of land and a modern plant, which was installed only a few years ago.

The town of Elsinore, Cal., is preparing to install a complete sewer system.

The Mission Winery, of Elsinore, Cal., is putting up a building of vitrified block made by the Pacific Sewer Pipe Co.

The Pacific Sewer Pipe Co., of Los Angeles, has taken a contract for pipe for an extension of the system at San Diego, Cal., amounting to $31,541.

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## STRIKE IS SETTLED.

Chicago, Ill., June 11.—The brick manufacturers, and many others as well, are rejoicing over the settlement of the brick strike, which lasted nearly six weeks. The outcome is rather favorable to the manufacturers and the settlement of the affair is such that there is not likely to be any similar trouble for several years at least. The men returned to work at the old wage scale, but will work one hour less per day, and there are the added features in favor of the manufacturers that the agreement will be in force for three years and will terminate on March 1, and not on May 1, as was the case this year.

Then too there has been a damper put on the whole matter, and the tendency will be in future to look a little longer, before the leap is taken in the matter of strikes. The trouble now is to keep everybody smiling and happy while trying to fill all back orders. While it is true that there is a reasonable quantity of common brick on the yards, there has been a delay that will mean a very rapid consumption of this supply and there will be a rush for the new lots as fast as they are made.

Work at most all of the plants has been under way for several days, and there will be no hitch in the matter of rush operations. It now looks as though there would be a continued good demand for several months at least, if not until late in the fall. While some of the plans that were in contemplation will be held up, there is sure to be a great amount of work turned out this summer and fall, and if the weather should continue favorable for a long period there will be a very decided increase in the number of buildings and the amount of work actually done.

Not for a long time have there been so many important changes noted in the loop district as this year, and the changes include the erection of a large number of buildings that are out of the ordinary. Many of these are of burned clay construction, and will do much to change the appearance of the face of the business district. But this is not all. There are a great many other large buildings to be erected in various sections of the city that will mean the use of much brick. Taking it all in all there should be a most gratifying increase in building operations this year, and there is a feeling of satisfaction on the part of all concerned.

There has been a very fair call for sewer pipe, terra cotta, fireproofing, conduit and other clay lines. While the whole clay industry here has been feeling the effects, not only of the brick strike, but of other strikes as well in the building lines, there is reason for the belief now that the sailing will be smooth in future, and that there will be small cause to complain about any lack of business.

There has been no perceptible change in the prices of any clay materials. The markets have been holding very well, and there is a reasonable price maintained for most everything in this line. On some lines there could be a stronger margin of profit, but the heavy sales will offset this to some extent and the total will prove an ample supply of orders, despite all the objectionable features.

The Carey Brick Co., is satisfied with the settlement of the brick strike. The report at the office of the company was to the effect that the prospects now were good for a nice demand. The company's plant has been put in operation again, and the shipments of brick from the yards have been under way for several days. The principal trouble now is to satisfy all the demands as early as possible. Some will be inclined to think that no orders may be neglected and all orders will be attended to as promptly as possible. This company is going ahead with a vim, and intends to make the time lost of as little consequence as possible.

The National Brick Co., feels much encouraged over the indications for the future now that there has been a settlement of the strike trouble. The company anticipates that there will not only be a big business this summer, but says the business should extend way into the fall. Though much depends upon the weather, there should be a strong demand for building brick for a long period. This is the view that is now taken by this company. It is the aim of the company to supply the demands as rapidly as possible.

The American Terra Cotta and Ceramic Co. feel much elated over the change in the situation. Mr. W. D. Gates expressed himself as being well satisfied over the settlement of the building brick strike and looked forward to a revival in the general building industry that would be most helpful to all the clay manufacturers. The prospects were certainly good and there should be no serious reason why the demand should not continue good for some months to come.

The Jenkins and Reynolds Co. see a favorable change in the face brick situation over the strike settlement in building brick lines. The increase in the demand was already noted and the indications gave ample evidence to the effect that there will be a continued increase in the very near future. Mr. White, of this company, has left the city on a flying trip to the East.

The Purington Paving Brick Co. find the demand for vitrified paving brick to be very fair, though there has been no rush for the same. However, with a very favorable prospect for the industry there can be no cause for complaint now.

The Alonzo Curtis Brick Co. finds the situation much improved now. The building brick plant of this company has been started after the enforced shut down, and the demand for the brick is showing up in a very nice way. There will be only one trouble and that will be to supply the urgent demand as early as possible. There will be as much progress made in this way as possible so there will be no great reason for complaint.

The S. S. Kimbell Brick Co. find an agreeable change in the situation since the brick strike settlement. Mr. Matz was feeling much better over the outlook and was inclined to feel very hopeful as to the demand for the face brick lines for the coming months. Everything looks far more pleasing than it has for some time.

The Wisconsin Lime and Cement Co. will be on the jump now to meet the increasing calls for face brick. Mr. Cormack was very much rushed and had little time for news reports. He was simply on the go and there was not much in the way of news to glean, with the exception that there was a rush of orders ahead.

The Chicago Retort & Fire Brick Co. has not noted any decrease in the number of orders received. Prospects continue very bright for this organization.

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## OUR EASTERN LETTER.

New York, June 9.—The arrival of new common brick within the last week was the sole support of a weakened market. Consequently prices held firmly, although the demand fell away more than 60%, owing to the combination of a Supreme Court Decision, which temporarily made a hesitant market, a holiday, and a rainy day. Then came three rainy days in succession, on Monday, Tuesday and Wednesday, June 5, 6, and 7, during which barges accumulated and sales fell way down.

The first of the 1911 product came in in spasmodic barge lots during this slump, while the lower price range was indeterminate, $6.00 a thousand, in wholesale lots, was generally maintained on the Exchange and on contract purchases. Prices are scheduled to move up a shilling to a quarter a thousand, beginning Monday, June 12, and, with the large volume of unexpected business that is expected to be squeezed out by the cut rates in price of steel and the open Portland cement market, a price of $6.50 within the next thirty days is not outside the pale of possibility. At least five cargoes are expected to arrive next week, representing a total of 1,750,000. There is already a keen demand for this material because architects and builders have been using last year's stock about four weeks longer than usual.

The Raritan situation is most encouraging. Long term contracts have been taken at prices close to May lists and very voluminous business is pending, calling for August and September deliveries. In the New Jersey field, the movement of brick is free at stiffening prices. The $6.75 yard prices which ruled in Newark earlier in the season are stiffer with a firm demand that, if haulage is a heavy item, or quantities not attractive, causes prices to move up a shilling or even more a thousand.

Both Raritan and Hudson river manufacturers have more optimistic views of the market than they entertained at the opening of the season. In fact, this change has come about within the last three weeks. The composite interview of eleven leading manufacturers of the Hudson, Raritan and Hackensack districts follows:

Instead of operating only 60 per cent of capacity this year, as originally planned, they will produce within 15 per cent of last year's output, which practically means that for every 1,000 brick turned out in a busy season 750 will be manufactured in 1911. Instead of injuring selling conditions the proposed organization of the twelve leading manufacturers in the district, as a nucleus for a distribution combination of larger proportions in the future, will stimulate the market because consumers will not postpone buying, as now, in anticipation of lower market prices, following long rainy spells or damage to green brick by storm. But the primary reason for the improved feeling among both dealers and wholesalers is the upheaval now going on in large material businesses.

Eight of the eleven manufacturers interviewed were of the opinion that the stability of the Eastern building material situation rested upon a close adherence to present price levels (as of June 8) or lower ones. The other three thought that present conditions were not dependent upon prices, but were due to a desire to execute building plans before the turmoil of a presidential election, national business readjustment, a long period of possible tariff revision and then a period in which the operation of the proposed reciprocity legislation will be watched, sweeps over the country.

The majority, representing the more conservative element of the whole, pointed to the building reports for the week ending June 3 as proof of their assertion that the steel war, coupled with the handing down of the great trust case decisions, upon the receipt of which the whole country for three years hung in hungry anticipation, would force building operations, both small and large, to the front. The reports showed that for the first time this year in Manhattan, Brooklyn, Jersey City, Newark and Yonkers, building plans filed actually exceeded, in volume, the totals for the corresponding weeks last year. In Newark, the value of the excess was approximately $97,000, while in Manhattan it was $265,000 over the total for the corresponding week a year ago, and was greater than any other week in 1911. The gains in the other centers were slight, but were important as showing a change for the better. The shortage in country-wide building construction in May was only 3 per cent below the total for May, 1910.

"What was the cause of this sudden movement?" was a question they asked their interviewer. Their own opinions were generally to the effect that it seemed to them significant that all these plans should suddenly come out from three to four weeks later than the usual spring rush takes place and almost immediately following the handing down of the Standard Oil and Tobacco case decisions and the quick rally of the stock market and, last but by no means least, the strangely simultaneous decisions of the steel magnates, that steel prices would be cut; for, be it remembered, the announcement that the reduction made by the Republic Iron & Steel Co. would be met by the United States Steel Corporation and its subsidiaries, came on the very day that the tobacco case decision was handed down, sufficient time being allowed for a telegraphic transcript of the decision to reach the magnates assembled in the Metropolitan Club in this city.

One of the manufacturers, interviewed, wondered why some of the biggest operations in New York city, generally understood to be indefinitely postponed, should suddenly come into the building material market with specifications, if the prospects of a big cut in steel prices and reasonable prospets of a firm securities market were not made more tangible and positive. He cited the new Telephone building, the Bamberger store addition in Newark, the new Masonic Temple building, the Williamsburg bridge reinforcing contract, the New York Central Y. M. C. A. building, the new Ritz-Carlton Hotel addition, and the great million dollar Fifth Ave. apartment house operation, the resubmission of plans for a larger Greeley Square hotel, not to mention many smaller loft and apartment house operations that had been announced as scheduled for action later in the summer.

Robert Dowley, president of the City Investment Co., said that he believed the action of the steel trust was the greatest test the building securities market has ever had to stand, especially since it has weathered so many trying crises since the first of the year. He said that operations indefinitely contemplated by his company had been scheduled to go ahead and some might be announced early in the summer, and the reason for this was that fundamental financial conditions were excellent and that there was really no cause for a further postponement of building operations.

### Change About Among Manufacturers.

Perhaps the most convincing proof of the change about of sentiment among brick manufacturers in the Hudson river district was their method of handling the labor troubles, which cropped out with customary regularity toward the latter end of May and in the first part of the present month.

It will be recalled that earlier in the season these manufacturers were very independent in their expressions regarding the quantity of help they would employ this year and also what wages they would give. Some of them even deferred sending South for help until the very last minute or until they were positive that even a moderate output would be required for 1911.

When the laborers began to drift back from the winter jobs on the water supply tunnels and dams they were put to work clearing yards in limited numbers, but when it became necessary to put on more men there were numerous minor strikes at Haverstraw, Dutchess Junction, Roseton, Glasco and Kingston. Many of them lasted only one day, because the manufacturers saw fit to give them an increase in wages of ten cents a day, which was ten cents below the 1909 scale. Upon this basis the men were willing to go back to work, but if the market price moves up and stays there, because of an increased demand for material, the men say they will demand the full 1909 scale.

### Supply, Demand and Prices Compared.

Not until the first of June was it possible to gage the actual basis of the brick maker's complaint that selling conditions have been bad this year. The following table prepared from actual sales records shows that prices were lower than last year's, but a larger volume of brick moved into this market, indicating that building operations have been numerous, despite the pessimistic views entertained by brick producers. If there were 350,000,000 brick up the river, as the official count taken in the first part of January was said to have showed, the total number of brick in the sheds today is approximately 78,400,000. Based upon a shed supply of 310,000,000 in January of 1910, the total amount of old brick on hand at the first of June last year was 51,700,000. Inasmuch as the number of brick contracted for, but now in shed, is approximately 54,000,000, the manufacturers would seem to have worked off their tremendous over-supply remarkably well for a building season which has never been called an active one. Tabulated details follow:

1911.

| | | Arrivals* | Sales* | Price† |
|---|---|---|---|---|
| Jan. | 7 | 18 | 11 | $5.00 |
| | 14 | 9 | 6 | 5.25 |
| | 21 | 13 | 6 | 5.50 |
| | 28 | 6 | 9 | 5.50 |
| Feb. | 4 | 0 | 3 | 5.50 |
| | 11 | 10 | 7 | 5.62½ |
| | 18 | 0 | 4 | 5.62½ |
| | 25 | 0 | 4 | 5.62½ |
| Mar. | 4 | 42 | 33 | 5.50 |
| | 11 | 27 | 32 | 5.50 |
| | 18 | 41 | 37 | 4.75 |
| | 25 | 67 | 64 | 5.25 |
| Apr. | 1 | 35 | 43 | 5.25 |
| | 8 | 52 | 52 | 5.75 |
| | 15 | 63 | 56 | 5.75 |
| | 22 | 63 | 60 | 5.62½ |
| | 29 | 70 | 69 | 5.75 |
| May | 6 | 51 | 59 | 6.00 |
| | 13 | 51 | 54 | 6.00 |
| | 20 | 76 | 66 | 6.00 |
| | 27 | 62 | 55 | 6.00 |
| Total | | 776 | 727 | |

1910.

| | | Arrivals* | Sales* | Price† |
|---|---|---|---|---|
| Jan. | 1 | 14 | 9 | $6.25 |
| | 8 | 0 | 8 | 6.50 |
| | 15 | 0 | 4 | 6.75 |
| | 22 | 0 | 3 | 7.00 |
| | 29 | 0 | 8 | 7.25 |
| Feb. | 5 | 0 | 3 | 7.25 |
| | 12 | 12 | 2 | 7.37½ |
| | 19 | 0 | 2 | 7.25 |
| | 26 | 0 | 3 | 7.50 |
| Mar. | 5 | 0 | 6 | 7.50 |
| | 12 | 16 | 5 | 7.00 |
| | 19 | 58 | 50 | 6.75 |
| | 26 | 61 | 63 | 6.25 |
| Apr. | 2 | 71 | 68 | 6.25 |
| | 9 | 69 | 70 | 6.25 |
| | 16 | 76 | 73 | 6.25 |
| | 23 | 63 | 60 | 6.25 |
| | 30 | 60 | 60 | 6.37½ |
| May | 7 | 72 | 72 | 6.25 |
| | 14 | 38 | 42 | 6.50 |
| | 21 | 67 | 59 | 6.00 |
| | 28 | 74 | 68 | 6.00 |
| Total | | 751 | 738 | |

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*Cargoes averaging 350,000 brick each.

†Per thousand, wholesale, dock, New York City.

Note.—Difference between arrivals and sales represents barges sold to out-of-town buyers on contract.

These details show plainly the actual conditions existing in the Hudson river brick market regarding supply and demand. Higher prices than were obtained this spring could hardly be expected if the over-supply was to be worked off, but this seems to have been accomplished to the satisfaction of all interests, and the manufacturers have suddenly discovered that their available supply is lower than they realized. That accounts in no small measure to the change about in the attitude of manufacturers in the Hudson district.

## THE SUNNY SOUTH.

Birmingham, Ala., June 12.—The manufacturer of building brick is enjoying a very good business, locally, there being a number of large jobs on the market and numerous smaller ones that will require millions of building brick. Among the largest are the building for the American Trust & Savings Bank, which will be an eighteen-story affair in which brick will play an important part; the five-story Ledger building, which will be built almost entirely of brick; the Y. M. C. A. building in which the majority of the material will be "good old" brick; the eight-story annex to the building of Loveman, Joseph & Loeb, for which the specifications announce in stentorian tones "brick"; the Drennen building, a huge three-story affair which will be composed mainly of brick; and it is also thought that a $1,000,000 hotel will be built in Birmingham in the near future in which, as usual, brick will play the leading part.

The National Mosaic Flooring Co. located in Mobile, Ala., has been bought from the Cuban interests by Mobile capitalists, William F. Tebbetts and F. Benemelis. This transaction represents an investment of something over $200,000. Mr. Tebbetts was later elected president of the company and Mr. Benemelis, vice-president, and Captain A. C. Danner, as secretary and treasurer. At present the company has over 1,500,000 tiles on hand, of all kinds of designs and qualities as a result of the company having manufactured that amount of tiles exceeding the orders, which has kept the factory closed for some time. The new owners will send out salesmen over the country and dispose of the over-supply, after which a full force of hands will be used for the manufacture of the product. The National Mosaic Flooring Co. was established in Mobile, about two years ago by a Cuban syndicate.

The Sulligent Brick & Manufacturing Co. is the name of a new concern located at Sulligent, Ala., of which officers are as follows: A. U. Hollis, president and general manager of the company; Dr. J. T. Dunn, secretary; and J. R. Craig, treasurer. All are prominent business men of Sulligent. Machinery for the manufacture of 300,000 brick per day has been bought and will be installed at once.

A terra cotta plant to cost about $250,000 will be constructed in the near future at Ragland, Ala., by the stockholders of a large cement concern of Birmingham. Plans have not been made public as yet, but it is thought that work on the structure will start soon.

Geo. O. Berry, well known in the South as a brick manufacturer, located at Columbus, Ga., has been highly honored, having been elected one of the grand representatives of the Georgia Odd Fellows to the Sovereign Grand Lodge of that order. Mr. Berry is a Past Grand Master of the Georgia Grand Lodge.

For the purpose of manufacturing brick according to the process patented by Mrs. Francis Shaw, of Chicago, the Chatham Brick Co., of Savannah, is having new kilns installed.

## THE MIDDLE STATES.

A brick kiln, 40 ft. in diameter and 30 ft. high, is being erected at the A. J. Fries brick yard, near Connersville, Ind. The kiln is said to be one of the largest to be erected in Indiana.

There is said to be a famine of building brick at Dickson, Ill., which has caused building operations to come to a standstill. The shortage is said to be the result of strikes at several brick yards throughout the state.

Mr. Andrew Rapp, the founder of the Rapp Bros. Pottery Co. at Morton, Ill., died recently.

A 75-h. p. boiler of the most improved type was recently installed at the brick plant of Geo. B. Roller, Canton, Ill.

# SOME KILN PROBLEMS

## A Paper Delivered Before the Canadian Convention, Toronto, Canada, Dec. 14-16

## By Vice-President, J. W. Ball

I can assure you I feel my own inability to deal with so great a subject, as I am more of a student than a teacher. I am sure there are those present who could deal with this subject in a more able manner. However, I will do my best and present to you a few remarks on the subject of "kiln troubles."

Perhaps it would be as well to look at a few points where the kilns get the blame for things that do not belong to them.

In the manufacture of all kinds of clay goods that have to be subject to the process of burning, it should be the aim of each and every manufacturer to see that these goods enter the kiln in the best possible condition so that the goods can issue from the kiln in like manner. In many cases there seems to be no consideration for the condition in which the ware enters the kiln, the only time that notice is taken in this particular line is when the goods issue from the kiln, and then they begin to consider what shall be done, what means they should adopt when, as a matter of fact, the trouble has nothing to do with the kiln or burning. If we look carefully into some of the processes of manufacture, we shall find them of the crudest type, in many cases the materials have no preparation at all, just simply passed into the brickmaking machine, if nature has not done its work well it receives no assistance from the manufacturer, therefore, one cannot wonder that when the bricks are subject to the burning this process finds the defects and shows them up plainly. If you take some of these bricks and break them through you will find some very variable conditions, some of these particles are in solid mass as large as ½ in. and more, and some of the finest. This erratic condition of the material adds greatly to the trouble in drying and should the bricks pass this process satisfactorily, it is very doubtful whether they will pass the burning process. You are all aware as practical men that the finer the material is ground the greater the contraction, also the density of the body is increased, the coarser the material, the less contraction and the porosity of the brick is increased. Now, if you have these two conditions existing in one brick, can you wonder that trouble will eventually come. The uneven contraction will cause it to crack, and in many cases break asunder. The trouble which originated with either nature or lack of preparation of the material is laid in many cases to kiln trouble, when as a matter of fact it had nothing to do with it only to show the defect of manufacture.

Another source of trouble found especially in stiff mud plants is that many plants making this particular brick lack drying capacity to thoroughly dry the bricks before they enter the kiln. In many cases owing to this defect the process of drying is speedily pushed to keep ahead of the brick-making machine. A stiff mud plant should have considerable more drying capacity than a soft mud plant of the same output, this is owing to the pores of the brick being closed and the brick denser with this method of manufacture, however, in many instances the brick enter the kiln in no condition for burning and before this operation can commence, this added moisture must needs be extracted while the bricks are under an enormous pressure, especially those in the bottom. In many cases these brick crush and crack with the weight while they are taking this hot moisture bath. This is not the only difficulty with wet brick being set in the kiln, but it has a material effect on the color, and makes them look as if they had a special slip rubbed upon them for no particular purpose and when drawn from the kiln the manufacturer is at a loss to understand why some of his bricks are a good color while some are not and what caused the unsightly appearance and in many cases instead of going to the seat of trouble he looks at his kiln as usual when the trouble lies elsewhere.

Another point that perhaps is overlooked more than any other is that in some plants where the dryer capacity is insufficient, the heat in the dryer is kept very high to try and get over the wet brick condition, so that the bricks may enter the kiln dry. These bricks come out of the dryer very hot, and are taken straight to the cold kilns and set where they have to stand for a few days and get cold again before burning operations take place. In some cases these bricks have to travel quite a long distance to the kilns in very bad weather, and are, therefore, subject to conditions altogether different from the dryer. This sudden change has a very material effect on some clays and will cause it to check on the surface and break the skin, and when such brick issue from the kiln who is to blame for these air checks? In many cases they are called fire checks, caused by uneven firing and this is laid to kiln troubles. Had these bricks been allowed to stand at the end of the dryer to cool off, or perhaps the dryer increased so that the heat need not have been kept at so high a temperature these bricks would not have been checked and would no doubt have come from the kiln in first-class condition, however, the kiln gets the blame and the burner for irregular firing.

Take the dry press process, bricks made by this process require great care in every branch of manufacture if the best results are to be obtained. There is no need for me to mention any particular process which I think is necessary for these bricks, but it is sufficient for me to say that after every care has been exercised in its manufacture, it then requires the skill of a practical burner to get the best results. A few points in this process is that the material must be prepared and the press must give enormous pressure to bring about a solidity without breaking the brick through the center. Now I wish to be distinctly understood that it makes no difference what kind of a kiln you have, what kind of a burner you have, if this brick is not thoroughly made, it is impossible to burn it. The reasons are, that this process of brick-making eliminates that great chemical action that takes place in every other process, namely, that it has not sufficient water used in its process to cause that density and adhesiveness which water and raw material acquire in a plastic state. Therefore, it depends very largely upon the amount of pressure needed to bring about this density. Therefore, it is very necessary that this particular brick be manufactured under the very best conditions. Take now, for instance, bricks made of this process of not too well-prepared material. The man at the press has to be constantly changing his pressure wheel. The press cannot give the amount of pressure necessary to make good brick, therefore, the bricks pass into a kiln in a half-dense condition, and when drawn they have very little sound, and are of a very spongy nature, and no amount of burning could put into that brick the solidity and firmness the press ought to have put there. On the other hand, the brick made by this process with the material properly mixed and subjected to the right amount of pressure can be burned successfully and will issue from the kiln in a sound, solid and homogeneous condition. It is a well-known fact in this process that the denser the brick, the easier to burn.

The above are only a few instances of the troubles that are encountered when the bricks issue from the kiln, and in many instances are attributed to the burning, which to my mind, should not be. Let every manufacturer of brick stand at his kiln door, and allow nothing to enter his kiln but what is in a fit state, and to my mind, he will be greatly surprised at the small amount of trouble his kilns are giving him.

There is no doubt that all present know that the kiln has got troubles enough of its own without making it responsible for troubles that do not belong to it. After years of experience with all kinds of kilns and burning all kinds of goods, I have yet to find a kiln that will work satisfactorily on its own account. From the time the kiln is filled and burning commenced, until the time it is cooled down, it is always a source of anxiety on the part of the conscientious burner. Kiln troubles are many and varied and would require experience of all those interested in the business to give a full list of all troubles that are encountered in the burning of clay goods. Conditions in various parts of the country vary. It is not often you can meet conditions alike, even in two places close together, and it is a well-known fact that two kilns built exactly alike, side by side, do not work exactly the same, hence, troubles one class of people have with their kilns, do not affect another, and so on.

However, there are certain conditions that should always be taken into consideration and lines can be adopted that will be a safeguard to those interested in the business. In the burning of brick, there are certain objects to be obtained. First, is the removal of the moisture contained in the material. To remove this moisture means that the burning must commence very slowly and continue very slowly until the brick has got warm right through its body. To push the burning to any extent before this has taken place means that the sudden expansion will destroy the bond and with many clays will cause what is known as blow and spelching, especially with tiles, etc. Therefore, it is very necessary that this part of the burning should be continued with due caution.

The next stage of burning is what is known as the oxygenation period. During this period all the carbonaceous matter is extracted from the bricks. If this period of burning is too rapidly pushed, it neglects to take away this carbonaceous matter, and during the vitrification will make itself visible by expanding the bricks, sometimes to twice their normal size and will show black or blue core when drawn. To carry a burning kiln through this stage successfully it should be treated to a steady rising temperature, created by a regular supply of fuel namely, small fires and often, and at all times a good draft maintained. It is surprising how quick a kiln can be burned when small fires and often is the method employed.

The next period of burning is what is known as the vitrification period when the brick changes from a perishable to a non-perishable material. Vitrification should never take place until the bricks are clear of all carbonaceous matter. It is at this period that the bricks not only receive their hardness and suitability as a building material, but also receive their color. Therefore, it is very necessary that the burner should think of these things before he pronounces his kiln finished. There are many troubles with kilns owing to negligence or carelessness on the part of those in charge. Erratic firing, at one period the heat in the fire-boxes is at melting point, at other times it is far below what its normal condition should be. It is during this erratic stage of burning that you have what is known as fire-checking, for the brick are first hot, and then cold, and to make up for this cooling, the burners in many cases pile on large fires, little thinking that the amount of dead coal is only holding back the heat and allowing cold air to rush into the kiln, and play upon the ware. You can get an example of what takes place by watching the safety valve on your boiler when it is discharging steam. The fireman opens the door and allows the cold air to pass in, the result is that the valve stops in a very short time. A point of importance which is carried out in good practice, is that the burner who is going to put fresh coal on his fire, should always push back his live embers to the back of his grates and place fresh coals upon the front, so that all carbon issuing from the fresh coals shall, by the mixture of oxygen as it passes over the hot embers, become ignited before passing into the kiln. This system of burning is very preferrable to the other method of placing coals directly on top of the fire, as a newly made fire of this description for a short time is of no value for the generating of heat. It also gets cleaner ware, better combustion, and takes less fuel for the amount of heat generated. A point of great importance in the burning of brick, etc., is that after the kiln is finished burning, the cooling takes place. With some clays this is a very important factor especially when the kiln has reached a temperature of dark-red heat, this is the time when air-checking takes place in vitrified ware. It is very seldom that the clay will air-check when it is at its hottest temperature. Therefore, great caution should be used at this particular stage that the heat should be allowed to escape from the kiln, and air excluded.

Another trouble that is sometimes experienced in the burning particularly of down-draft kilns, is that the heat is not properly distributed at the bottom. A great deal of this can be overcome by the regulation in burning, allowing sufficient air to pass into the fire boxes to drive the heat from the top to the bottom. Too close firing is the source of this trouble.

There are many other troubles with kilns too numerous for me to mention, and troubles that are peculiar to the person that is using his own particular kiln. A few of these troubles are lack of draft, irregular draft, back-blowing, cold spots, sooting and others, which no doubt many of those present have encountered in their experience as brickmakers. It would be too difficult for me to stand up and enumerate these troubles and to give their remedies. Therefore, I hope a few remarks I have been able to make will be of material benefit to some member of the convention.

## PIECE OR DAY WORK?

Paper read before the Canadian Convention at Toronto, Dec. 14-16.

Which is the better system on a brick plant, day work or piece work? Someone might answer to this, neither, and say that the bonus system is the best of all. It is impossible, perhaps, to apply any one of the above systems and say that it is the best. What might be best on one might not work out at all on another. If a plant is not kept in first-class running shape one cannot expect employes to make a success of piece work or day work either, from the employer's standpoint.

With day work a workman is sure of his day's pay, but no matter how much harder he works than the other fellow he does not make any more money in a day. He has no incentive to spur him on to his best efforts. It is generally admitted that where it is possible there is an advantage both to the employer and the employe when some system can be worked out that will be agreeable to both parties.

On piece work an employe feels that he has something to work for, he is working more for himself. The harder he works, the more he makes. If he can get more work out of the machine he is reducing the cost of the goods, and his employer shares in his gain also. On piece work one should have an idea what the work is worth, and both parties should have confidence in one another that if a good day's pay is made the work shall not be cut down. If there is a lazy man in the gang, piece work is going to find him out. A system where piece work is a success will raise the standard of the men. The better workmen will go where he can make the most money.

Will a piece worker take greater care of his machinery than day workers? We believe that the inducements are greater. A gang of men will sometimes overlook a defect in the working of a machine that they would not overlook if they were on piece work. A system that will keep machinery to its maximum output is a saving in more ways than one. Less capital will be required, as less machinery will do the work.

In one case a factory reported that they turned out more work in a week, working nine hours a day, with the Saturday half-holiday, than they did formerly in a ten hour day, six days per week. The employes did not suffer from the reduction of hours, but on the contrary, made more wages. It is admitted that in times of keen competition the firm that can produce goods at the minimum cost are serving their own interests as well as those of their employes.

When a man is working on the day work system he knows what he is going to have for his day's work, and in some cases may not be willing to risk a certainty for what he thinks is an uncertainty. In cases like this the firm should explain fully any system of piece work and show that the object is more money, not less. In one case a company that worked all piece work installed a new machine, the working of which was new to the employes. To overcome the difficulty this machine was worked two months on day work till the hands understood the working and saw that they could make more money by the piece work system. In another case a gang of Italians were loading shale by day work. The boss wanted them to try the work by the ton. He tried several times, but the men seemed afraid of it. But one day when he said "Ten men load one hundred cars, get ten hours pay, take pail and go home," they were willing to try it, and the bargain proved satisfactory to both sides. The one thing that they wanted no doubt about was that they were going to get the full day's pay. Once the element of uncertainty as to the amount of pay was eliminated, they worked more cheerfully, and did more work in shorter time, than they had done before.

In some cases the premium or bonus system is worked successfully in place of piece work or day work. In this way, the employe is sure of a certain amount each week, while if he works harder the amount is increased according to the work done over the amount agreed as a day's minimum, or in other words, he makes his day's wages plus the bonus earned. This inspires a man to do the work better and quicker than by day work, thus benefiting both himself and his employer.

We would say, in conclusion, that any plan or system that will promote good feeling between employer and employe, and make an employe feel that his work is worth while and that he has a chance to make all there is in the work is the proper system to have. No hard and fast rule can be laid down. What will work one place may not work another.

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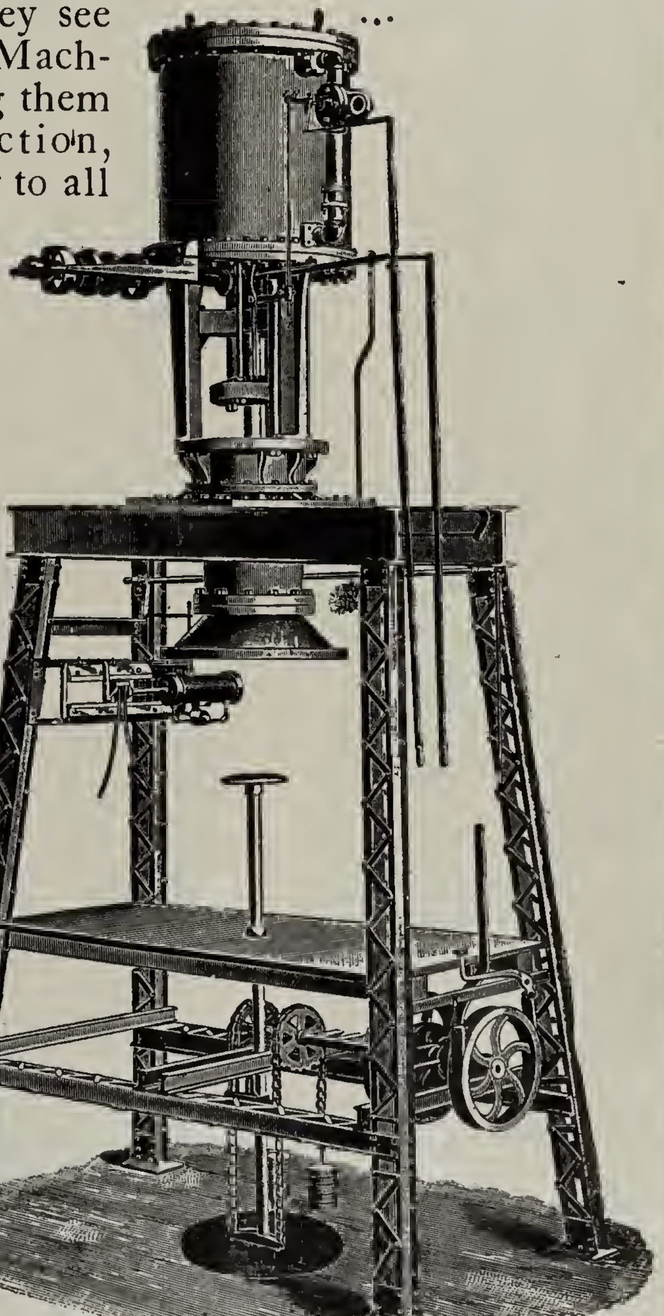

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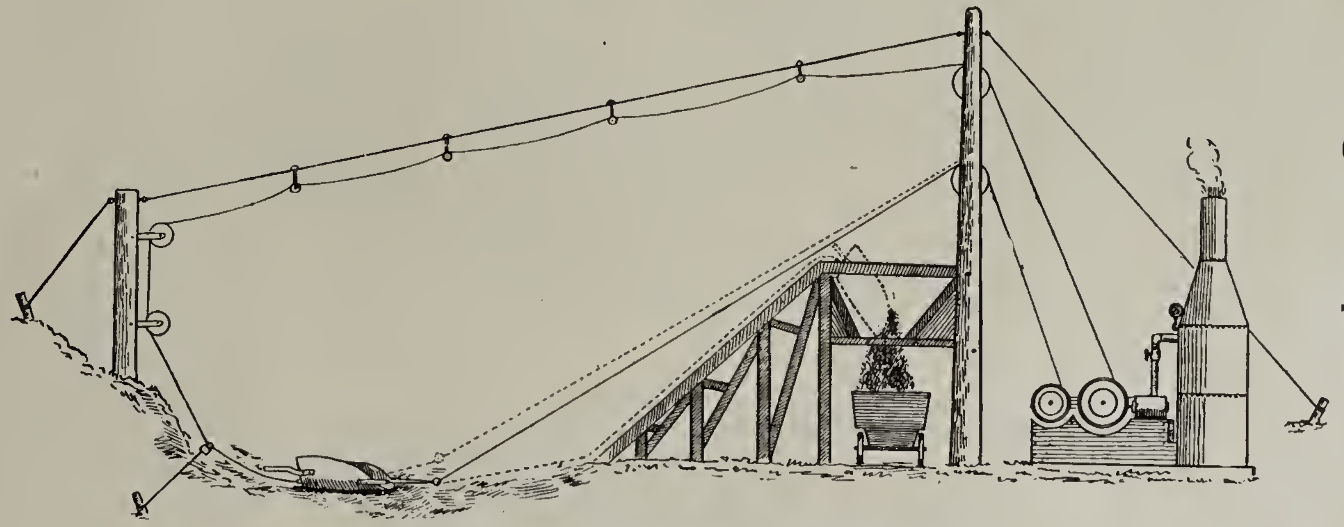
**Construction:**

Simple and Durable



**Operation:**

Easy. Only Three Men Required

*"The Brickyard's Salvation"*

The above cut shows machine for loading material on cars. We install machines for different dirt-moving propositions, such as removing overburden, canal work, levee work, etc. *All machines are sold and installed under written Guarantee.* **Write for Catalog and Full Information.**

## BURKETT-JAMES CONSTRUCTION CO.

Office and Works, MACON, GA., U. S. A.

## Buyers' Directory of Manufacturers—Continued.

### Fuel Economizers.
Green Fuel Economizer Co.

### Furnace (Kiln).
McManigal, R. D.
Richardson-Lovejoy Eng. Co.

### Gas Engines.
Otto Gas Engine Wks.

### Gears.
Nuttall, R. D.
Schultz & Son, A. L.

### Grates and Grate Bars.
American Clay Machy. Co
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Chicago Brick Machy. Co.
Manufacturers Eq. Co.
Martin Grate Co., The.
Raymond Co., C. W.
Scott-Madden Iron Wks. Co.
Vulcan Steam Shovel Co.

### Hollow Block Machinery.
American Clay Machy. Co.
Berg Machy. Mfg. Co., Ltd.
Brewer & Co., H.
Bonnot Co.
Brewer & Co., H.
Manufacturers Eq. Co.
Raymond Co., C. W.

### Inspection Tests—Consultation.
Hunt & Co., Robert W.
Richardson-Lovejoy Eng. Co.

### Injectors.
American Injector Co.

### Kilns.
American Clay Machy. Co.
Berg Machy. Mfg. Co., Ltd.
Boss, John C.
Buhrer, Jacob.
Haigh, H.
Raymond Co., C. W.
Richardson-Lovejoy Eng. Co.
Scott Kiln Drying Co
Snowden & Co., Geo. E.
Swift, E. A.

### Kiln Bands.
Berg Machy. Mfg. Co., Ltd.
Ohio Ceramic Eng. Co.
Tecktonius Mfg. Co., E. C.

### Kiln Lugs.
American Clay Machy. Co.
Berg Machy. Mfg. Co., Ltd.
Caldwell Co., W. E.
Raymond Co., The C. W.
Tecktonius Mfg. Co., E. C.

### Locomotive (Steam).
Davenport Locomo. Works.

### Lugs (Band).
Caldwell Co., W. E.
Ohio Ceramic Eng. Co.
Raymond Co., The C. W.
Tecktonius Mfg. Co., E. C.

### Machine Tools.
Cleveland B. Machy. Co.

### Manganese.
Gabriel & Schall.
National Paint & Manganese Co.
Roessler & Hasslacher Chemical Co.

### Mechanical Draft.
American Blower Co.
Green Fuel Economizer Co.
Massachusetts Fan Co.
Raymond Co., The C. W.
Sirocco Eng. Co.
Trautwein Dryer & Eng. Co.

### Mineral Paint.
Ricketson Mineral Paint Wks.
Williams & Co. C. K.

### Mortar Colors.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

### Molds.
American Clay Machy. Co.
Berg Machy. Mfg. Co., Ltd.
Hensley, J. W.
Martin Brick Mch. Mfg. Co.
Raymond Co., C. W.
Scott-Madden Iron Wks. Co.
Wellington Machine Co.

### Mold Sanders.
American Clay Machy. Co.
Berg Machy. Mfg. Co., Ltd.
Hensley, J. W.
Martin Brick Machy. Mfg. Co.
Potts & Co., C. & A.
Raymond Co., C. W.
Wellington Machine Co.

### Oil Burners.
Schurs Oil Burner Co.
Tate, Jones & Co.
Weller Mfg. Co.

### Packing.
Lombard Iron Wks.

### Paints.
Ricketson Mineral Paint Wks.
Williams & Co., C. K.

### Pans—Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.
Brewer & Co., H.
Manufacturers Eq. Co.
Means Eng. & Fdry. Co.
Raymond Co., The C. W.
Turner, Vaughn & Taylor Co.

### Pallets and Trays.
Ohio Galvanizing & Mfg. Co.

### Patents.
Peck, Hubert E.

### Paving Brick or Block.
Alton Brick Co.
Barber Asphalt Pav. Co.
Barr Clay Co.
Boone Brick, Tile & Pav. Co.
Danville Brick Co.
Deckman Duty B. Co.
Kushequa Brick Co.
Metropolitan Paving B. Co.
Murphysboro Paving Bk. Co.
Purington Paving B. Co.
United Brick Co.

### Perforated Sheet Metal.
Hendrick Mfg. Co.

### Portable Track.
Ohio Ceramic Eng. Co.
Raymond Co., The C. W.

### Potters' Machinery.
American Clay Machy. Co.
Bonnot Co.
Raymond Co., C. W.

### Power Plant Equipment (Complete).
Cleveland Belting & Mach. Co.
Manufacturers Eq. Co.
Murray Iron Works Co.
Trautwein Dryer & Eng. Co.

### Presses—Sewer Pipe and Tile, Nozzle and Sleeve, Tuyere and Shape Brick.
Turner, Vaughn & Taylor Co.

### Pug Mills.
American Clay Machy. Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate & Co., J. D.
Freese & Co., E. M.
Manufacturers Eq. Co.
Martin Brick Mach. Mfg. Co.
Means Eng. & Fdry. Co.
Raymond Co., C. W.
Schultz & Son, A. L.
Scott-Madden Iron Wks. Co.
Stevenson Co.
Steele & Sons, J. C.
Wallace Mfg. Co.

### Pulleys—Cast Iron.
American Clay Machy. Co.
Berg Machy Mfg. Co., Ltd.
Brewer & Co., H.
Bonnot Co.
Lombard Iron Wks.
Manufacturers Eq. Co.
Raymond Co., C. W.
Scott-Madden Iron Wks. Co.
Stephens-Adamson Mfg. Co.

### Pulleys—Clutch and Wood.
American Clay Machy Co.
Berg Machy. Mfg. Co., Ltd.
Bonnot Co.
Brewer & Co., H.
Lombard Iron Works.
Raymond Co., C. W.
Scott-Madden Iron Wks. Co.
Stephens-Adamson Mfg. Co.

### Pulverizers.
American Clay Machy. Co.
American Pulverizer Co.
Berg Machy. Mfg. Co., Ltd.
Bonnot Co.
Chicago Brick Machinery Co.
Fate Co., J. D.
Manufacturers Eq. Co.
Potts & Co., C. & A.
Raymond Co., C. W.
Scott-Madden Iron Wks. Co.
Williams Patent Crusher Pul. Co.

### Pumps—Steam.
Lombard Iron Works.
Manufacturers Eq. Co.
Pulsometer Steam Pump Co.
Scott-Madden Iron Wks. Co.

### Pyrometers.
Brown Instrument Co.
Englehard Chas.
Frink Pyrometer Co.

### Quartz Glass Articles.
Englehard, Chas.

### Rails, (Frogs and Switches).
Archer Iron Wks.
Atlas Car & Mfg. Co.
Indianapolis Frog & Switch Co.
Ohio Ceramic Eng. Co.
Raymond Co., C. W.
Richardson & Co.

### Rails.
American Clay Machy. Co.
Archer Iron Wks.
Berg Machy. Mfg. Co., Ltd.
Frank, M. K.
Manufacturers Eq. Co.
Ohio Ceramic Eng. Co.

### Railway Equipment (Industrial).
Archer Iron Wks.
Davenport Loco. Works.
Indianapolis Frog & Switch Co.
Ohio Ceramic Eng. Co.
Orenstein, Arthur, Koppel Co.
Raymond Co., C. W.
Richardson & Co.
Sackett Screen & Chute Co.
Stephens-Adamson Mfg. Co.

### Rattler.
Berg Machy. Mfg. Co., Ltd.
Ceramic Supply & Cons. Co.
Hetherington & Berner.

### Recording Gages.
Brown Instrument Co.

### Represses.
American Clay Machy. Co.
Berg Machy. Mfg. Co., Ltd.
Bonnot Co.
Chambers Bros. Co.
Chicago Brick Machinery Co.
Fate Co., J. D.
Illinois Supply & Con. Co.
Martin Brick Mach. Mfg. Co.
National Brick Machy. Co.
Ohio Ceramic Engr. Co.
Raymond Co., C. W.
Steele & Son, J. C.

### Revolution Indicators.
Brown Instrument Co.

### Rope Preservative.
Cling-Surface Co.

### Roof Tile Machinery.
American Clay Machy. Co.
Illinois Supply & Con. Co.
Raymond Co., C. W.

### Rope (Wire and Manila).
Broderick & Bascom Rope Co.
Manufacturers Eq. Co.

### Sand Lime Brick Machinery.
American Clay Machy. Co.
Am. Sandstone Brick Mch. Co.
Berg Machy. Mfg. Co., Ltd.
Bonnot Co.
Chisholm, Boyd & White.
Cleveland Brick Machy. Co.
International Sand-Lime Brick & Machy. Co.
Raymond Co., C. W.

### Schools.
University of Illinois.
N. Y. State School of Clay Working & Ceramics.
Ohio State University.
Rutgers College.

### Scraping and Dumping Machinery.

### Screens (Clay and Cement).
American Clay Machy. Co.
Berg Machy. Mfg. Co., Ltd.
Bonnot Co.
Burkett-James Cons. Co.
Hendrick Mfg. Co.
Ohio Ceramic Engineering Co.
Raymond Co., C. W.
Stephens-Adamson Mfg. Co.

### Sewer Pipe.
Mack Mfg. Co.

### Sewer Pipe Machinery.
American Clay Machy. Co.
Berg Machy. Mfg. Co., Ltd.
Raymond Co., C. W.
Stevenson Co.
Taplin, Rice-Clerkin Co.
Turner, Vaughn & Taylor Co.

### Steam Gages.
Brown Instrument Co.

### Steam Shovels.
Browning Eng. Co.
Marion Steam Shovel Co.
Thew Auto Shovel Co.
Vulcan Steam Shovel Co.

### Steam Specialties.
American Injector Co.
Morehead Mfg. Co.

### Steam Traps.
Morehead Mfg. Co.

### Steel Pallets.
Manufacturers Eq. Co.
Ohio Galvanizing & Mfg. Co.
Raymond Co., C. W.

### Steel Towers.
Caldwell Co., W. E.

### Stokers.
Under-Feed Stoker Co. of America.

### "Tapestry" Brick.
Fiske & Co.

### Thermometers.
Brown Instrument Co.

### Tile Machinery.
American Clay Machy. Co.
Anderson Fdy. & Mach. Wks.
Arbuckle & Co.
Berg Machy. Mfg. Co., Ltd.
Bonnot Co.
Brazil Machine & Fdy. Co.
Brewer & Co., H.
Chicago Brick Machinery Co.
Fate & Co., J. D.
Freese & Co., E. M.
Manufacturers Eq. Co.
Raymond Co., The C. W.
Scott-Madden Iron Wks. Co.
Steele, J. C. & Sons.
Wallace Mfg. Co.

### Time Recorders (Electric).
Stromberg Electric Co.

### Tramways (Aerial).
Broderick & Bascom Rope Co.

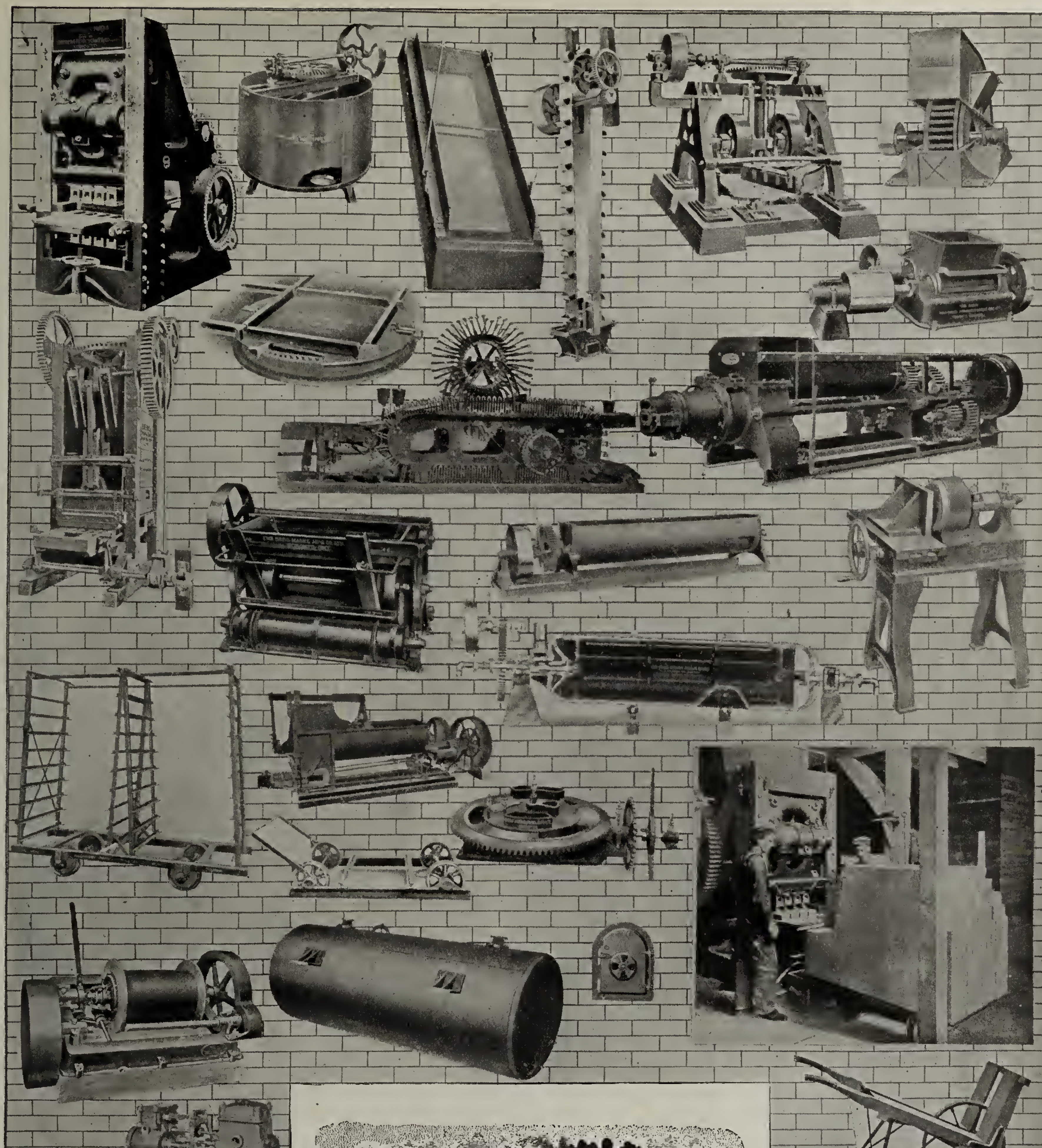
### Trucking Systems.
Fate Co., J. D.
Raymond Co., C. W.

### Wagons.
Auburn Wagon Co.

### Water Tanks.
Caldwell Co., W. E.

### Wheelbarrows.
American Clay Machy. Co.
Archer Iron Wks.
Berg Machy. Mfg. Co., Ltd.
Bonnot Co.
Brewer & Co., H.
Hensley, J. W.
Manufacturers Eq. Co.
Martin Brick Mach. Mfg. Co.
Ohio Ceramic Eng. Co.
Raymond Co., C. W.
Scott-Madden Iron Wks. Co.
Wellington Machine Co.

### Wire Rope.
Broderick & Bascom Rope Co.
Manufacturers Eq. Co.
Raymond Co., C. W.
Scott-Madden Iron Wks. Co.


Moulding and Machine Shop
The Berg Machinery Mfg. Co. Ltd.
The Berg Machinery Mfg. Co.
Boiler Shop
No. 6
Champion
Rock Crusher

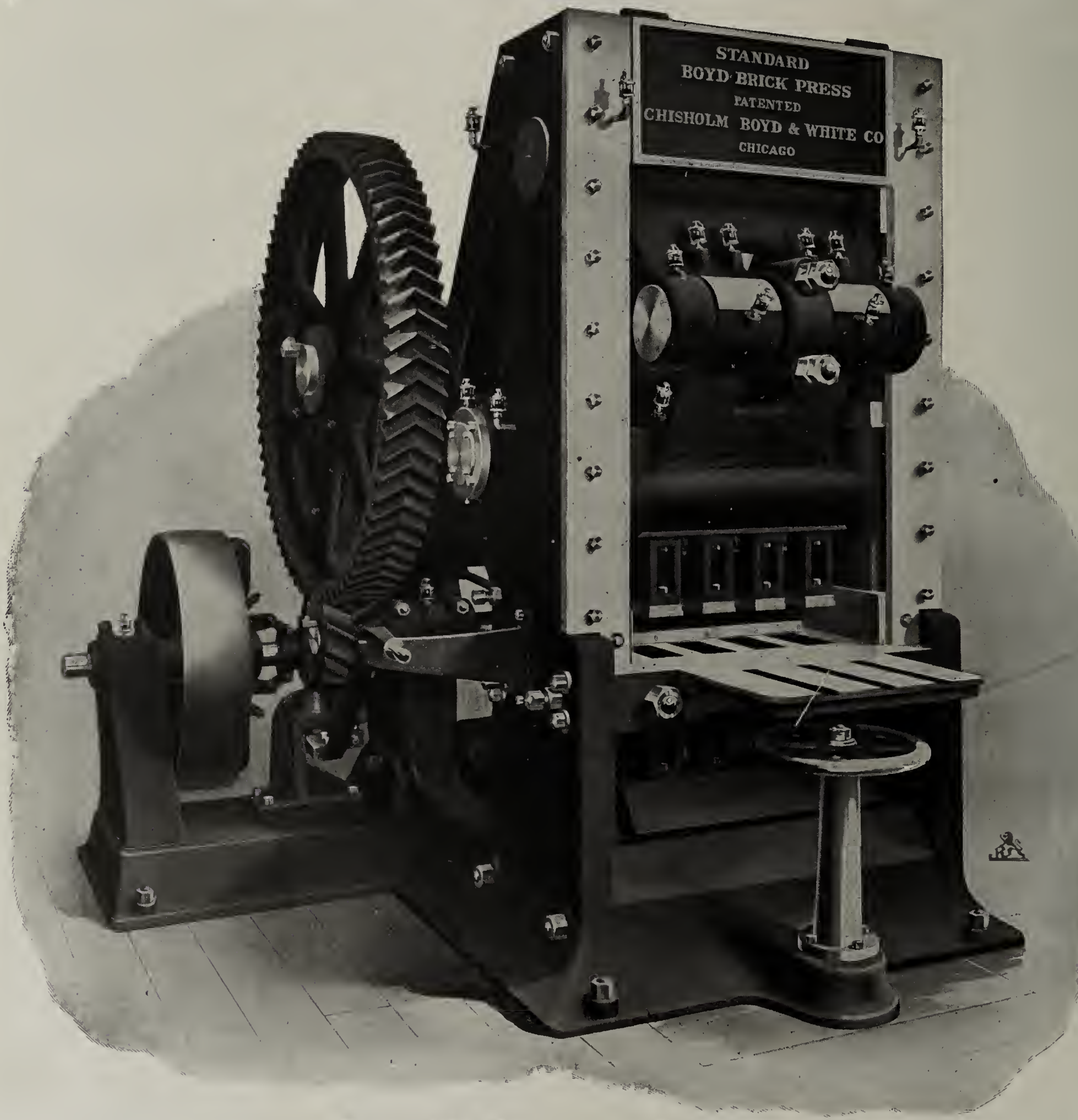
**Office and Works:**

**Corner Bathurst and Niagara Streets**

# The Berg Machinery Manufacturing Co., Limited

**Toronto - Ontario**

# Standard Boyd Brick Press



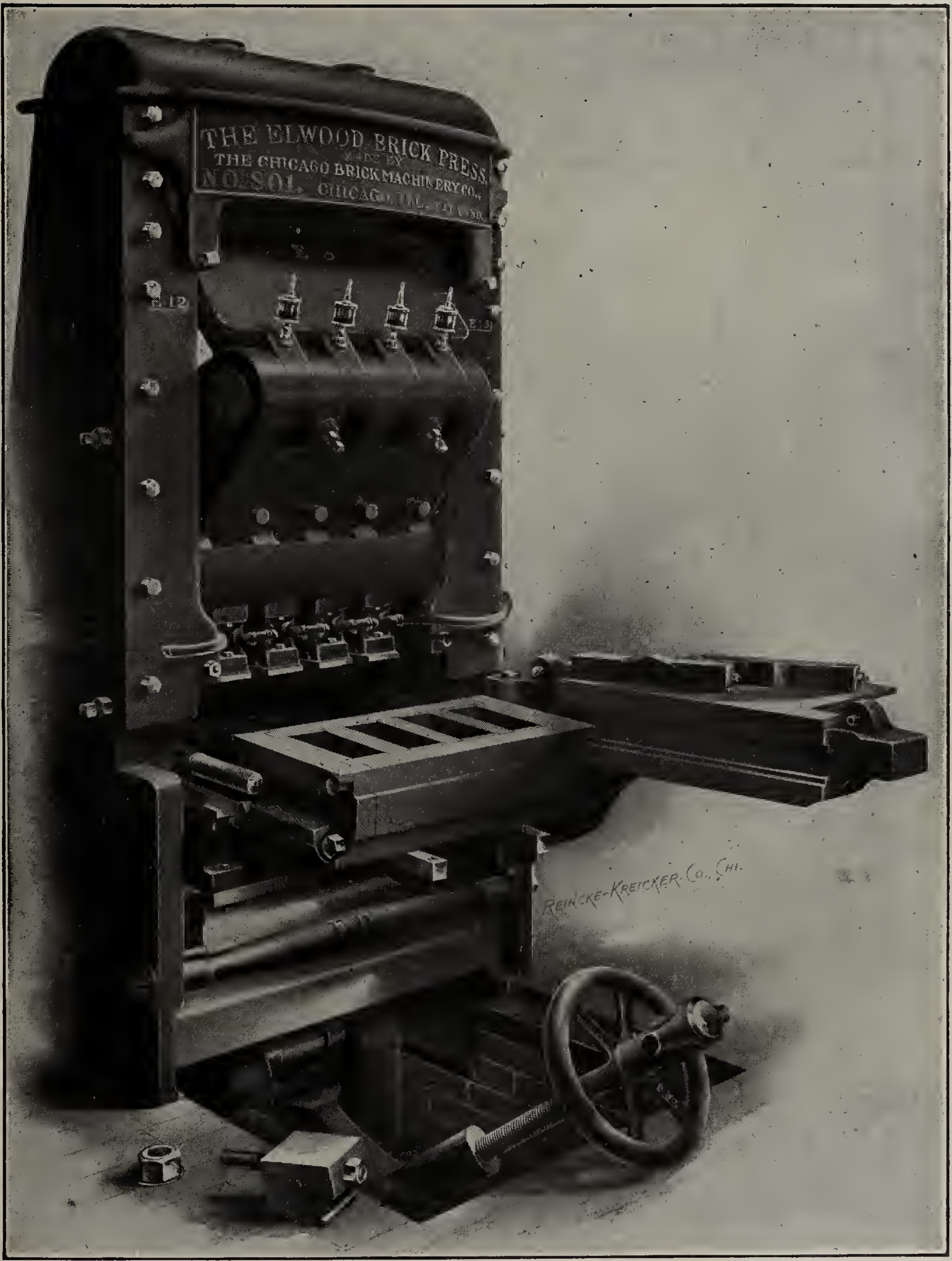
## BALANCED—PRESSURE

The BOYD is the only Brick Press having this feature. Patent on this improvement just issued.

**Chisholm, Boyd & White Co.** OFFICE AND WORKS: 57th and Wallace Sts. **Chicago**

# THE ELWOOD PRESS

## "THE OPEN DOOR"



**The easiest method of changing molds is by the use of our OPEN DOOR MOLD TABLE. ℂ Two interchangeable mold boxes furnished. ℂ Simplest of all Presses. ℂ Send for our New Booklet SHOWING THE 1911 IMPROVEMENTS.**

# Chicago Brick Machinery Co.

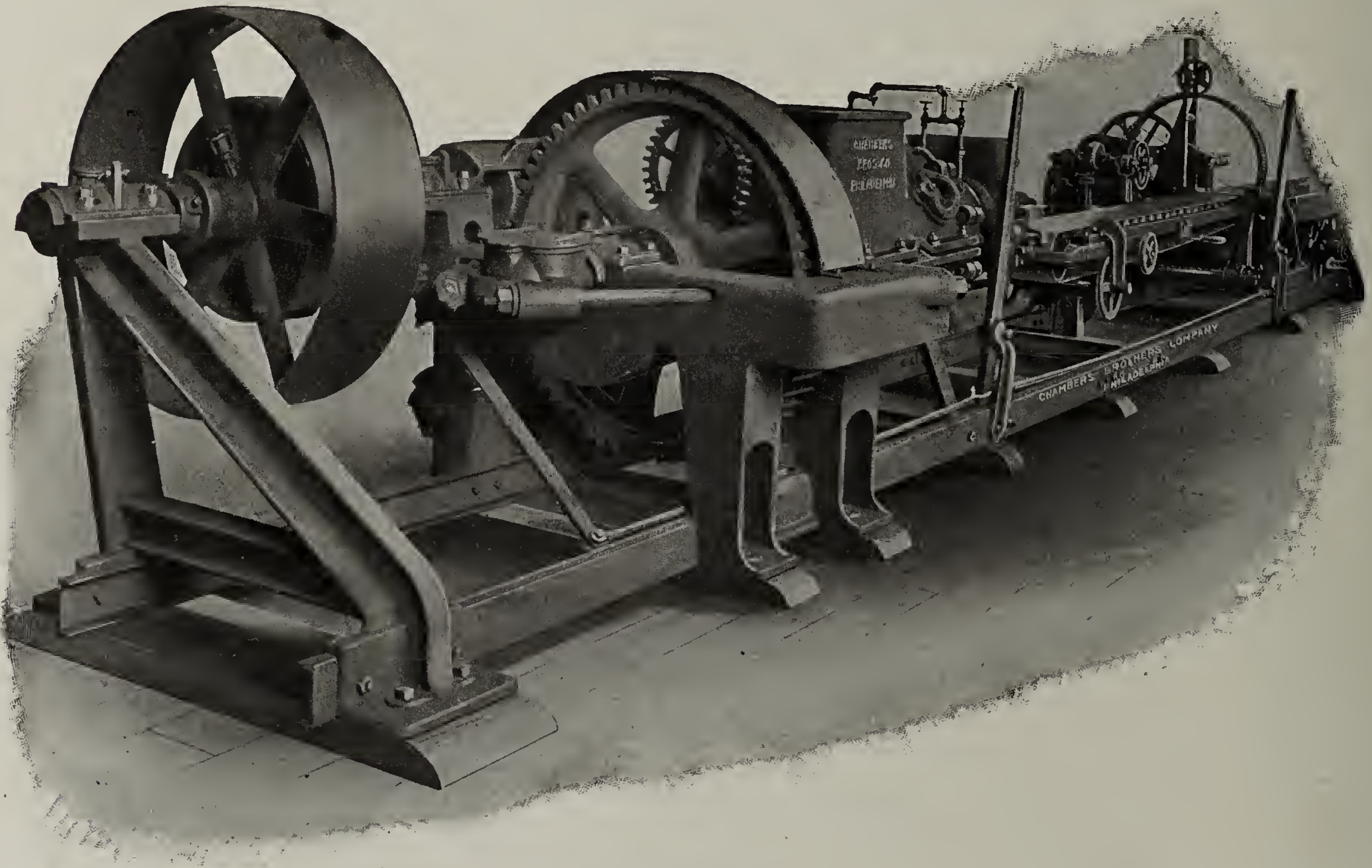
20 West Jackson Boulevard, Chicago

**SOLD BY THE MANUFACTURERS EQUIPMENT CO., DAYTON, OHIO.**

## The No. 10

# Chambers Brick Machine

### With No. 6 Automatic Side Cutter



This is a new machine and embodies a number of novel and interesting features. The No. 6 Side Cutter has been tested to as many as 110 brick per minute and is confidently guaranteed for a capacity of 40,000 bricks daily. It is a single wire rotary cutter with a down shear cut, cutting but one brick at a time and cutting them absolutely square and smooth. Provision is made for the escape of stones, should they come in the path of the cutting wire, and the flexibility of the wire does not affect the squareness of the cut.

Note the new gear frame and large diameter heavy gear of broad face. Observe how the end thrust is provided for, as well as the position of driving shaft and clutch pulley. No trouble to get at the journal bearings when necessary to rebabbitt. Clutch pulley 44 inches diameter by 12 inches face. Driving Shaft 3 7-16 inches diameter. For hard work and a daily capacity of 20,000 to 40,000 bricks this machine is in a class of its own.

## Chambers Brothers Company

**Fifty-Second and Media Streets :: :: PHILADELPHIA, PA., U. S. A.**
**524 West Jackson Boulevard, CHICAGO**

# THE C LINE

## Some Recent Orders for

# The Chambers Brick Machinery

**From State of Georgia**

W. E. Dunwody, Vice-President of the Cherokee Brick Co., of Macon, who read a strong paper before the N. B. M. A. Convention in February, and told how he had last year *sold 70 millions of brick with the aid of* ADVERTISING, has just ordered for one of his companies the Chambers Special Auger Brick Machine.

The Flint River Brick Co., of Albany, Ga., did the same thing one week earlier.

W. J. Massee, President of The Bibb Brick Co., at Macon, led off with two of these extra heavy Special Machines a short time before.

These orders all replaced Chambers Machines of smaller capacity, which will be brought to our shops for rebuilding. Bargains for some one!

**From State of New Jersey**

The Didier-March Co., near Perth Amboy, buy Chambers Represses for their Fire Brick Works.

The Revere Fire Brick and Tile Co, near South Amboy, buy Chambers No. 10 side-cut brick machine and Pug-Mill.

The Bridgeton Brick Co., of Bridgeton, are erecting an entire outfit of new machinery, including a Chambers No. 10 side-cut brick machine.

These companies are all managed by men having previous experience in the purchase of machinery.

**From State of Pennsylvania**

The Bloomsburg Brick Co. has ordered an outfit consisting of Chambers Automatic side-cut brick machine, Pug-Mill and Keystone Repress.

James Florey has ordered for his Spring City works a Chambers Keystone Repress.

What man in Eastern Pennsylvania knows more about Red Press Brick manufacture than Mr. Florey?

# NOTICE TO THE PUBLIC

The U. S. Circuit Court of Appeals at Philadelphia rendered its final decision in the suit that we brought against the Pennsylvania Crusher Company some time ago for infringement of our Patent No. 843,729, for improvements in Dumping Cages for Crushers and Pulverizers. This decision of the Court of Appeals handed down in the March term 1911, concludes, "the record will be remanded with instructions to the Circuit Court to enter a decree reversing the former one adjudging claims 1 and 2 of the patent in suit to be valid and infringed, and awarding to the complainant an injunction with the usual accounting and costs of suit."

Under the law, a user of an infringing machine is liable for his acts of infringements. The maker and seller of the infringing machine in question has been found to have infringed our patent No. 843,729, and the Court of Appeals, in addition, has found the infringed claims of said patent to be valid.

It is our intention to protect our rights as secured to us by the above patent and numerous other patents which have been granted on improvements we have made in crushing and pulverizing machinery, and the public is warned against buying crushing and pulverizing machines which infringe any of the following patents:

| | |
|---|---|
| No. 428,048 | May 13, 1890 |
| No. 544,336 | Aug. 13, 1895 |
| No. 11,634 | Oct. 26, 1897 |
| No. 589,236 | Aug. 31, 1897 |
| No. 589,236* | Aug. 31, 1897 |
| No. 590,748 | Sept. 28, 1897 |
| No. 590,748 | Sept. 28, 1897 |
| No. 604,485 | May 24, 1898 |
| No. 604,485 | May 24, 1898 |
| No. 604,485 | May 24, 1898 |
| No. 646,249 | Mar. 27, 1900 |
| No. 646,250 | Mar. 27, 1900 |
| No. 646,278 | Mar. 27, 1900 |
| No. 657,998 | Sept. 18, 1900 |
| No. 35,211 | Oct. 22, 1901 |
| No. 711,688 | Oct. 21, 1902 |
| No. 726,602 | Apr. 28, 1903 |
| No. 728,643 | May 19, 1903 |
| No. 728,643 | May 19, 1903 |
| No. 730,503 | June 9, 1903 |
| No. 738,507 | Sept. 8, 1903 |
| No. 741,947 | Oct. 20, 1903 |
| No. 741,947 | Oct. 20, 1903 |
| No. 957,705 | Apr. 19, 1904 |
| No. 758,288 | Apr. 26, 1904 |
| No. 758,288 | Apr. 26, 1904 |
| No. 758,288 | Apr. 26, 1904 |
| No. 792,485 | June 13, 1905 |
| No. 806,383 | Dec. 5, 1905 |
| No. 803,133 | Dec. 26, 1905 |
| No. 808,133 | Dec. 26, 1905 |
| No. 811,679 | Feb. 6, 1906 |
| No. 813,190 | Feb. 20, 1906 |
| No. 815,087 | Mar. 13, 1906 |
| No. 815,087 | Mar. 13, 1906 |
| No. 818,328 | Apr. 17, 1906 |
| No. 818,725 | Apr. 24, 1906 |
| No. 836,161 | Nov. 20, 1906 |
| No. 836,162 | Nov. 20, 1906 |
| No. 836,162 | Nov. 20, 1906 |
| No. 836,163 | Nov. 20, 1906 |
| No. 836,422 | Nov. 20, 1906 |
| No. 843,729 | Feb. 12, 1907 |
| No. 845,171 | Feb. 26, 1907 |
| No. 850,988 | Apr. 23, 1907 |
| No. 851,390 | Apr. 23, 1907 |
| No. 12,659 | June 4, 1907 |
| No. 12,659 | June 4, 1907 |
| No. 12,659 | June 4, 1907 |
| No. 858,772 | July 24, 1907 |
| No. 877,689 | Jan. 28, 1908 |
| No. 877,689 | Jan. 28, 1908 |
| No. 877,689 | Jan. 28, 1908 |
| No. 877,690 | Jan. 28, 1908 |
| No. 877,690 | Jan. 28, 1908 |
| No. 877,876 | Jan. 28, 1908 |
| No. 878,847 | Feb. 11, 1908 |
| No. 878,921 | Feb. 11, 1908 |
| No. 878,921 | Feb. 11, 1908 |
| No. 878,921 | Feb. 11, 1908 |
| No. 878,921 | Feb. 11, 1908 |
| No. 904,907 | Nov. 24, 1908 |
| No. 904,908 | Nov. 24, 1908 |
| No. 904,909 | Nov. 24, 1908 |
| No. 906,346 | Dec. 8, 1908 |
| No. 938,656 | Nov. 2, 1909 |
| No. 938,656 | Nov. 2, 1909 |
| No. 938,657 | Nov. 2, 1909 |
| No. 938,657 | Nov. 2, 1909 |
| No. 938,734 | Nov. 2, 1909 |
| No. 938,734 | Nov. 2, 1909 |
| No. 938,734 | Nov. 2, 1909 |
| No. 939,769 | Nov. 9, 1909 |
| No. 939,770 | Nov. 9, 1909 |
| No. 939,771 | Nov. 9, 1909 |
| No. 939,772 | Nov. 9, 1909 |
| No. 939,773 | Nov. 9, 1909 |
| No. 939,774 | Nov. 9, 1909 |
| No. 939,775 | Nov. 9, 1909. |
| No. 939,776 | Nov. 9, 1909 |
| No. 939,777 | Nov. 9, 1909 |
| No. 939,778 | Nov. 9, 1909 |
| No. 940,827 | Nov. 23, 1909 |
| No. 944,780 | Dec. 28, 1909 |
| No. 944,780 | Dec. 28, 1909 |
| No. 944,780 | Dec. 28, 1909 |
| No. 953,111 | Mar. 29, 1910 |

*"Manufactured and Licensed Under 87 Separate and Distinct Patents."*

## THE WILLIAMS PATENT CRUSHER & PULVERIZER CO.

**Works: ST. LOUIS, MO.**
**2701 N. Bdwy.**

**SAN FRANCISCO**
**428 Monadnock Bldg.**

**CHICAGO**
**Old Colony Bldg.**

S-A MFG. CO

# To Increase the Capacity of Your Plant

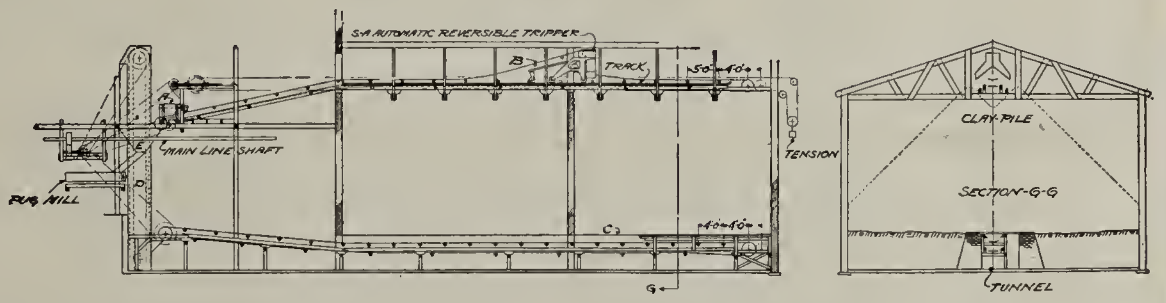
S-A MFG. CO

The use of continuous conveying machinery in place of intermittent car hauls, carts or other methods of handling clay is a large aid in increasing the plant's capacity.

Belt Conveyors properly constructed occupy small space, the power required is low, the possibility of breakdowns is small and the maintenance and depreciation are slight.

**"S-A" Belt Conveyors** are built to meet their operating conditions and in every case are giving good service. The capacity of certain brick plants has been practically doubled by the installation of "S-A" Conveyors, and the operating costs have been reduced.

**The "S-A" Side Lapping Elevator Bucket** increases the elevator's capacity and saves the belt. No material can touch the belt to wear it and no lumps can fall back of the belt to puncture the belt.



The Storage System of the Barr Clay Company of Streator, Illinois. This is part of a rather complete conveying system which carries to and from the dry pan and stores and reclaims the material. An overhead conveyor distributes over a movable tripper into any part of the bins below. For reclaiming, the clay is raked from the pile through removable planks in the floor onto the conveyor beneath.

An "S-A" Tripper discharging shale into the storage bins of a large brick plant.

Let us assist you in the design of your conveying system. Our engineers will show you how to increase your capacity.

## Stephens-Adamson Mfg. Co.

**Conveying, Screening, Transmission Machinery**

**Aurora, Illinois**

Chicago
San Francisco
New York
Los Angeles
Pittsburg
Birmingham
Portland

# "A STRAIGHT LINE IS THE SHORTEST DISTANCE BETWEEN TWO POINTS"

WHICH is to say—if you happen to own a brick plant the distance covered by "wheelers" in conveying your brick between points in your plant or yard means a large item of expense against a year's business.

Maybe you never thought of it as an unnecessary expense because you took it for granted that it was unavoidable. You realized that a great deal of time and labor was involved in this feature of your business, but you knew of no way to avoid it.

*That was before the Mathews Gravity Brick Carrier was invented.*

*Now you have no excuse for continuing the old expensive method.*

Our method of conveying brick by natural gravity *annihilates both time and distance.*

Our method will convey brick just as quickly between points a block apart as it will between points fifty feet apart.

Our method reduces your pay roll and increases your output.

These are points you cannot afford to regard indifferently.

*They are either true or they are not true.*

At least, if you are a good business man you will put our claims to the test and make us prove them.

If you will take the time to think of the possibilities of a mechanical brick conveyor as against the wheel barrow method, you will lose no time in communicating with us.

Briefly, the *Mathews Gravity Brick Conveyor* is a device consisting of steel, ball-bearing rollers set close together in rigid steel frames. They are made in sections of various lengths and supplied with adjustable supports. Reversible curves are provided for turning corners, also automatic elevators where conditions require their use. A carrier line covering any desired distance can be quickly set up, adjusted to a slight incline, over which brick will travel by their own weight, rapidly and without injury. No expense to operate or maintain.

Send for our complete catalog showing detail of construction, and how it is used. Advice, plans and estimates will be cheerfully furnished by addressing

## Mathews Gravity Carrier Co.

*Main Office:* St. Paul, Minn., U. S. A.

# Twenty-Five Years Ago

WE STARTED MAKING A SPECIAL
BELT FOR THE BRICKMAKER

# TWENTY-SIX HUNDRED

## Leading Brick and Clay Plants Are Now Using the Sawyer Belt

SAWYER BELTS ARE MADE IN SEVERAL DIFFERENT CONSTRUCTIONS FOR THE VARIOUS CLASSES OF SERVICE

A PROPER BELT FOR EVERY CONDITION

# What's the Use of Waiting?

Our next ad won't offer a better belt—
A better belt cannot be made————

Write your wants and troubles

To our

ENGINEERING DEPARTMENT

## SAWYER BELTING COMPANY

CLEVELAND, OHIO

# GANDY

STITCHED COTTON DUCK
**BELTING**
"STEAM PROOF"

This is one important advantage of "The Gandy Belt."

But besides being steam proof—the Gandy Belt is unaffected by intense heat, severe atmospheric changes, oils or acids—or flying grit and dust, such as exist in brick yards, cement mills, on stone crushers, etc.

The Gandy Belt is one-third the cost of leather and 25% cheaper than rubber. The most durable and economical belting for driving, elevating and conveying, proved by its 34 years of success.

Write for sample of belt and free booklet containing testimonial letters from Gandy users in every line of industry.

*Write us to-day.*

**Gandy Belting Company**
732 W. Pratt St.
Baltimore, Md.
New York Office—88-90 Reade St.

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Are you still using canvas belting made the same way it was 50 years ago—with only one set of stitching? If you are, it's high time we told you about

## Rexall Double Stitched Belting

"double-stitched"

**Double Stitched**

**MEANS**
**Double Life**

Trade Mark Registered

**Rexall Double Stitched Belting** is made by first stitching the inner plies—next putting on the cover, and then giving it a second set of stitches

**It costs no more** than the ordinary canvas belt,
but is **guaranteed to last three times as long.**

*Write for sample, booklet, testimonials, etc.*

**IMPERIAL BELTING COMPANY**
**Chicago, Ill.**

*Branches* – Minneapolis, 914 Flour Exchange Bldg.; Salt Lake City, 324 Felt Bldg.; Denver, 902-3 Gas & Electric Bldg.; Dallas, 818 Praetorian Bldg.; Los Angeles, 312 Security Bldg.

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# How to Analyze Clay

A Practical Work
for Practical Men

An aid to beginners and full instructions
for making clay analysis.

64 Pages with Illustrations
By Holdem M. Ashby

PRICE
$1.00
POSTPAID

**KENFIELD-LEACH COMPANY**
CHICAGO

# The Youngren Continuous Kiln

Since the absorption of the Youngren Kiln by the C. W. Raymond Company, some two years ago, the many installations have demonstrated conclusively that there is not one iota of experiment in the kiln. Our many facts and figures may be easily confirmed by a little correspondence with its enthusiastic admirers.

Regarding experimentation along the lines of clay ware burning, there have been constant attempts at a complete revolution of the method of manufacture, drying and burning based upon false theoretical ideas, causing the expenditure of enormous sums of good money and resulting only in failure and financial embarrassment.

The Youngren Kiln cannot be even considered as in this class, as installations of several years standing are producing, and will continue to produce the results we claim, in most instances going way beyond our expectations, as well as being capable of thoroughly vitrifying the ware, producing either oxydizing or reducing conditions.

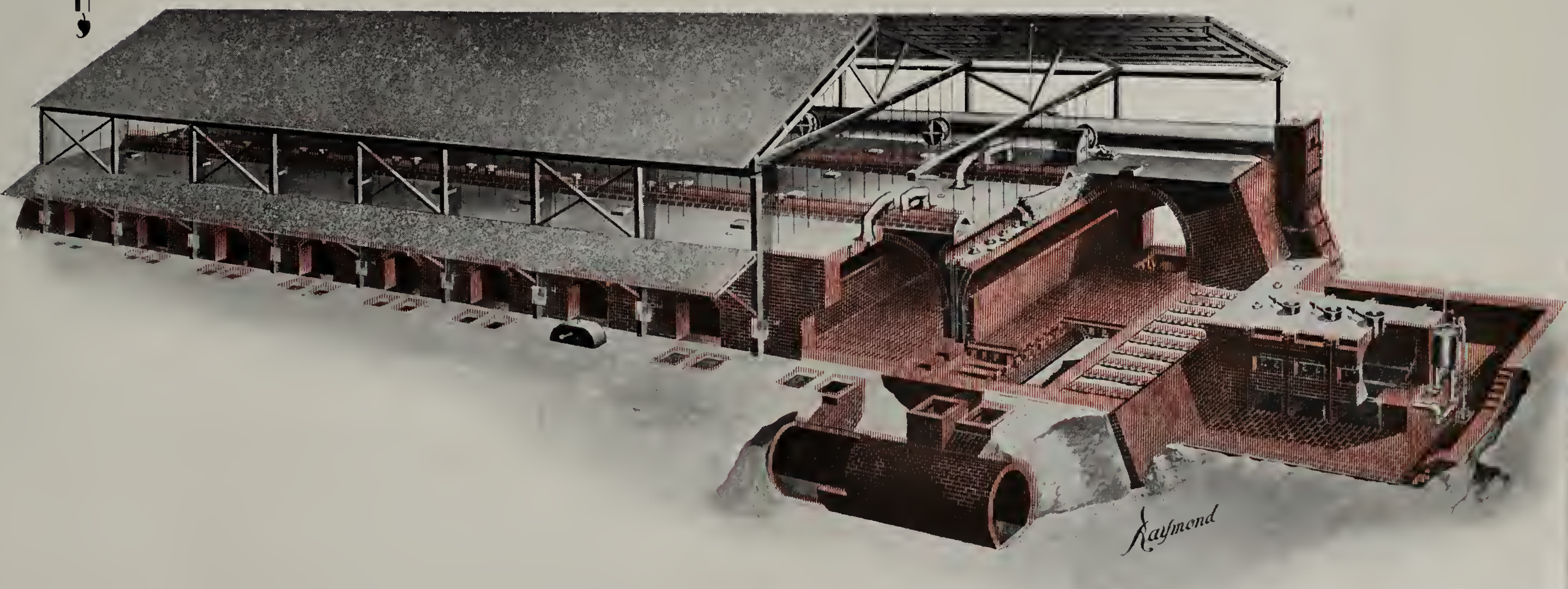
During the month of June, six kilns in well known plants will be started on their road to successful operation. The lighting of fires at Mason City, Iowa; Macon, Georgia; Bayne, Washington; Kachelmacher, Ohio; and Knoxville, Tennessee, will begin the daily burning of 325,000 brick, saving 60 per cent of the coal which would be used in round draft kilns.

*Special Catalog upon Request*

## The C. W. Raymond Company

***The Strongest Power in the World***
***of Clay Working Machinery***

**Dayton :: Ohio :: U. S. A.**



STANDARD BRICK CO.
MANUFACTURERS OF
MILWAUKEE CREAM COLORED BRICK
OFFICE AND YARD: 496 TO 510 CLEMENT AVE.
TELEPHONE SOUTH 421

Milwaukee, Wis., June 3d, 1911

The C. W. Raymond Company
Dayton, Ohio

Gentlemen:

We have your favor of the 1st inst., regarding our opinion of the Youngren Gas-fired Continuous Kiln.

We think the kiln is the most perfect device for burning brick that has been tried up to the present time.

Experiments which we have conducted this spring indicate that on hot days the waste heat from our kiln is sufficient to dry all of our brick; on cool days we find it necessary to use additional heat from our coke furnaces. We are confident that when the present season is finished our coke bill (drying cost) will be reduced fifty per cent. Deducting this saving from our cost of burning, brings the latter down to about 35 cents per thousand.

These estimates are conservative and are based on the manufacturing months only. During the time we are not drying brick, the waste heat is literally wasted, and the cost of burning goes up correspondingly.

We have no objection to your using this letter, or to extend due courtesy to any one writing us, on matters pertaining to the Youngren Kiln.

Wishing you every possible success, we beg to remain,

Yours very truly,

STANDARD BRICK COMPANY
*ROBERT KRETSCHMAR, Jr., Sec'y and Treas.*

# The Raymond New Metallic Radiation Dryer

The Raymond Metallic Radiation Dryer as now constructed varies from any system ever before placed on the market and is based on principles which have been proven to be perfect.

*First.* Even radiation, causing no sudden changes in temperature.
*Second.* Gases of combustion do not enter the tunnel to cause discolored ware.
*Third.* Perfect control of atmospheric movement or circulation to handle the tenderest clays.
*Fourth.* Absolute control of heat.
*Fifth.* Ease of cleaning flues where bituminous coals are used.
*Sixth.* Any kind of fuel can be used for creating the heat.

The cast sectional radiators are so constructed that warping is prevented, and upon request we will gladly furnish you with all particulars of this, or any other of our line of manufacture.

THE
**C. W. RAYMOND COMPANY**

*The Strongest Power in the World of Clay Working Machinery*

Dayton :: Ohio :: U. S. A.

# THE BERG DRY PRESS

The New Model Berg Press is the acme of dry press construction. Stronger than ever, yet simple in its massiveness, it stands farther in advance of all other machines of this type than ever before.

## THE C. W. RAYMOND COMPANY

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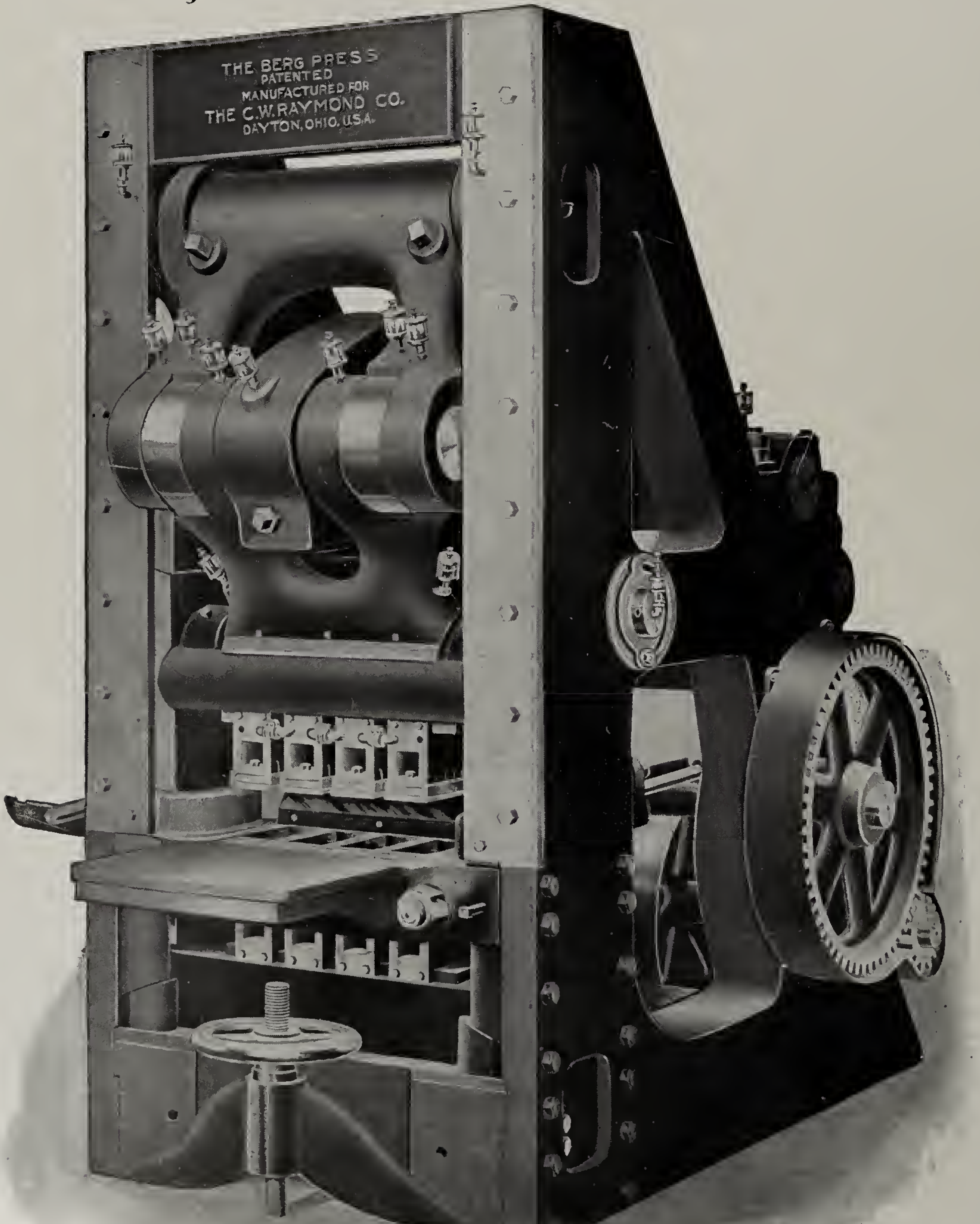

*Consider these points:*

(1) Greater pressure and fewer working and wearing points than any other machine.

(2) Brick with granulated surfaces absolutely impossible.

(3) Self-contained—no out-board bearing.

(4) All working parts above clay line.

(5) Instantaneous adjustment, to take up wear of plungers, close to operator's hand.

(6) Each press shipped complete in one piece.

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Our Exhibit No. 2111 gives complete details.

# We Lead All in Kilns and Furnaces
# Over 25 Years' Experience

**Our Single Down Draft Kilns** burn ALL No. 1 Face—Paving or Fire Brick. NO over burnt or soft brick in kiln.

**Our Style A.** Continuous Downdraft Chamber Kiln. For use of oil or natural gas.

**Our Style B.** For use of producer gas.

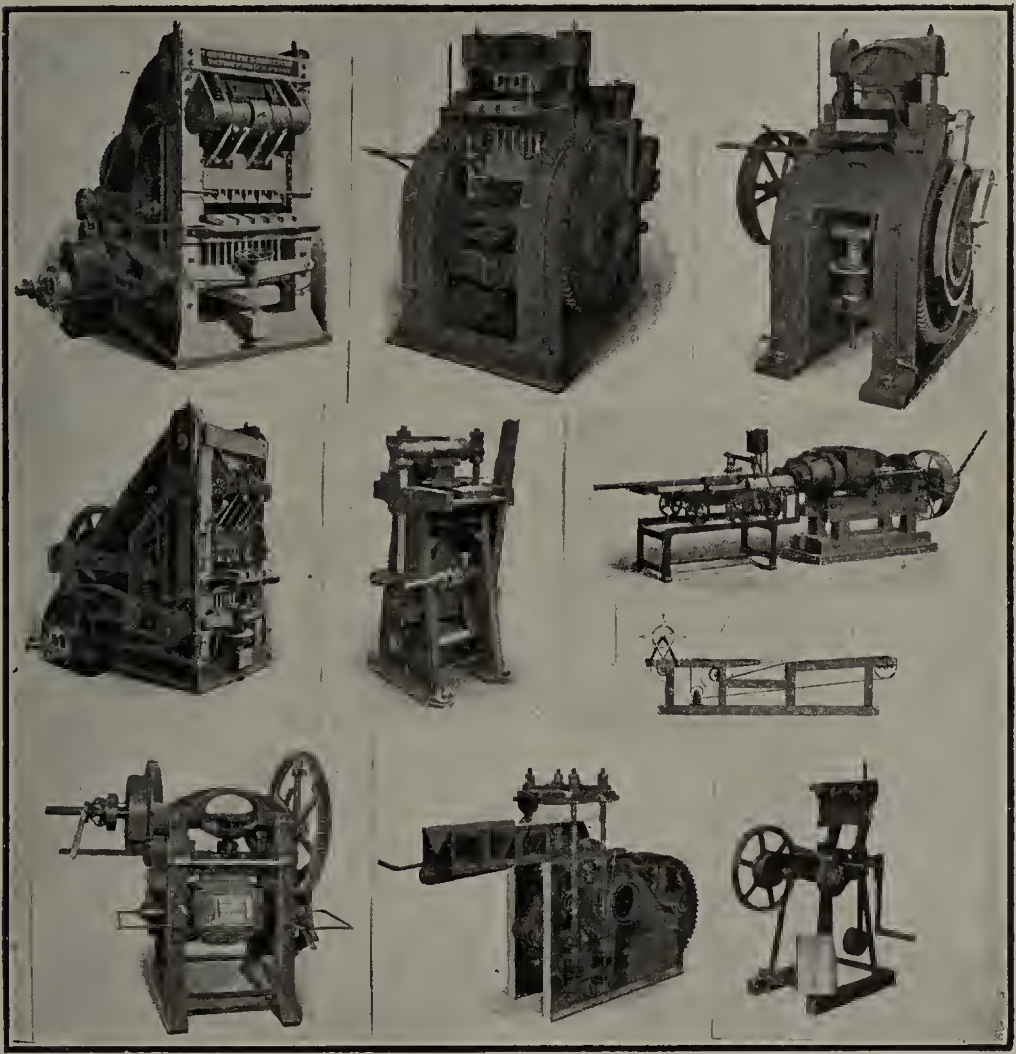
**Our Style C.** For use of wood or coal direct. No smoke made. All the heat in the fuel used.

**Our Continuous Kilns** are fired from both sides, will stand wear and tear. The waste heat is applied at sides; bottom and top, heating up uniformly, and insuring uniform burns, without losses.

**Our Kiln Furnaces** are simple, easy to handle, burn the smoke, prevent cracked ware and slack or pea coal will give better results than lump coal in ordinary furnaces.

## The Grath Brick Presses and Roofing Tile Machinery

Are Best, Simplest and Strongest and the Prices are Right



For Highest Grade Press Brick and Roofing Tile you must have **The Best Machinery.**

**Built in all sizes for any capacity**

**We sell**

## The Schurs Oil Burners

**for kilns of all kinds, also boilers**

The Schurs Burners are the Simplest in the market. Only three parts to burner. Will give better results with less oil than any burner made. **Price right.** Over 6000 in use.

***Write for Special June Prices on 1, 2 and 3 Mold Presses***

## Illinois Supply & Construction Co.

**CENTURY BLDG., ST. LOUIS, MO.**

**Liebers' Code.**
**Cable Address,**
**GRATH, St. Louis.**

**Long Distance**
**Telephone,**
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## Haigh's Improved New System of

# Continuous Kiln

### Arranged to Suit All Locations

These Kilns can be seen burning Roofing Tile, Dry Pressed, Facing, Fire, Paving and Common Building Brick, and burning from 5,000 to 200,000 Brick per day.

### Points of Superiority:

Cheapness in construction. Easy to understand and operate. Perfectly free from any nuisance. We save more than one-half the fuel and half the labor used on other Kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

We can show you scores of these kilns at work. We claim the nearest to 100% No. 1 product, and want you to see them.

***This Kiln can be Fired with Coal, Wood, Oil, Natural or Producer Gas. For economical working, and quality of product, it has no equal.***

**List of Haigh Kilns sold, and under construction, at the present time:**

| | |
|---|---|
| The American Fire Brick Co., Spokane, Wash. | 65,000 per day |
| Sibley-Menge Brick & Coal Co., Birmingham, Ala. | 60,000 dry pressed brick per day |
| The Excelsior Brick Co., Fredonia, Kansas | 100,000 paving brick per day |
| The Revere Fire Brick & Tile Co., South Amboy, N. J. | 40,000 per day |
| Richards Brick Co., Edwardsville, Ill. | 40,000 dry pressed brick per day |
| F. J. Lohmann, Saginaw, Mich. | 20,000 per day |
| The Murry Brick Co., Cleveland, Ohio | 60,000 brick per day |
| The Tempest Brick Co., McKeesport, Pa. | |
| National Fire Proofing Co. at their new plant at Hamilton, Ont., Canada, being the fourth kiln this company will then have in operation. | |

*For further particulars and information address*

# H. HAIGH

**Brickworks Engineer** **CATSKILL, N. Y.**

# The Swift Kiln Features

No Fire Brick Used, Only in Furnaces.

1-4 to 1-3 more capacity than
any other kiln on the market.

**No Grates Whatever----Solid Bottom**

Only **Slack Coal** used from start to finish
(without the use of artificial draft)

Sold under a guarantee to produce 95
to 98 per cent hard even burned ware.
1-3 to 1-2 less labor during burning.

If your burning is not satisfactory let me have your inquiry. I can furnish you plans where you can change your kilns at small cost and will guarantee results.

**EDWARD A. SWIFT**

**OTTAWA :: :: :: :: ILLINOIS**

ORIGINAL
Boss
SYSTEM

DRYING
and
BURNING

ORIGINAL
Boss
SYSTEM

**Boss System of Burning Brick**

**THE ORIGINAL PRINCIPLE OF APPLYING AIR UNDER PRESSURE TO BRICK KILNS**

Will cut your fuel bill half in two
No expense for maintenance
Less labor in burning
Will burn all hard, uniform brick from top to bottom
*Write for catalog.*

**John C. Boss Company** **Elkhart, Indiana**
**MONGER BUILDING**
**(Infringers will be Prosecuted)**

ORIGINAL
Boss
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DRYING
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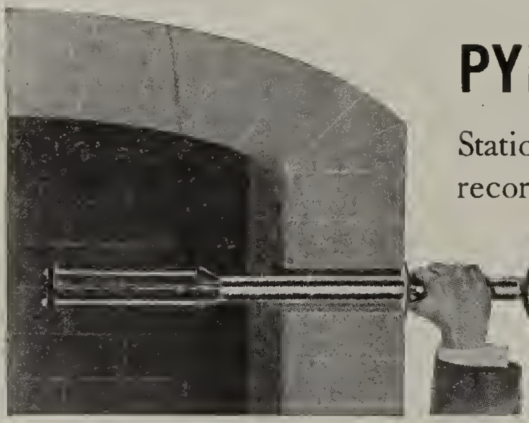
BURNING

ORIGINAL
Boss
SYSTEM



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Stationary, portable and recording Pyrometers to 1200 and 3000 degrees

**THE BROWN INSTRUMENT CO.**
**311 Walnut Street** **Philadelphia, Pa.**

Absolute Control of Temperatures in All Kinds of Kilns and Furnaces
**Heraeus Le Chatelier**
**PYROMETER**
Recommended by the highest authorities

For measuring temperature between 0 and 1600 deg. Celsius, equal to 2920 deg. Fahrenheit. Successfully used in establishments for the manufacture of Brick, Pressed Brick' Terra Cotta, Pottery, Porcelain, Stoneware, Chamotte, Cement, Glass, Iron and Steel' and other metals, particularly for Hardening and Annealing, also for Molten Metals Cartridges and Ammunition, Chemicals, Gas, Accumulators; and by Boiler Inspectors' School and Colleges.

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For Laboratory and Experimental Use.

**Fused Silica Ware of Every Description at Moderate Prices**

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of every description. This Heraeus Patented Fused Quartz Glass is not affected by any changes of temperature, whatsoever, and the co-efficient of expansion is only 1 17 that of platinum. It is of the utmost importance for all purposes where the above qualities are essential. Write for information. Pamphlets and References on Application

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**THE TESTED, TRIED AND BEST**

**Fire Advance Over 140 Feet Daily : Draught Under Perfect Control : Immense Economy**

In Europe **1337 Million Bricks** are yearly dried and burnt in Kilns and Dryers, system Buhrer, worked by **315 Buhrer Fans**

*ASK FOR PAMPHLET*

Respecting the Brick and Tile Works of Messrs. Vetter Gebrüder, Mühlacker, near Stuttgart, Germany, which were built last year after the plans and System of Mr. Jacob Bührer, Constance, on the Lake of Constance, the report of "The British Clayworker," in the July issue, 1910, on "Clayworkers' Excursion to Germany," runs as follows:—

> "The works, the visit to which was kept to the last, like the best wine at a well ordered banquet, are the largest of their kind on the Continent, and called forth the liveliest expressions of surprise at their importance from all members of the party. The buildings are, to say the least, magnificent, and the internal arrangements as perfect as it is possible to make any brickworks."

***Over One Thousand Kilns Erected : Write for Free English Pamphlet to***

**JACOB BUHRER** KILN SPECIALIST
CONSTANCE, GERMANY

**The Frink Method**

Increases Production; Prevents Overburn, Swelling, and Fire Cracks. Can be installed at Small Cost and no Loss of time.

SIXTY kilns burned by the FRINK METHOD showed an average saving of $24.02 per kiln in FUEL ALONE, over the same number of kilns burned by the old way. Same kilns, same plant, same time of year.

The LOSS of popped and blown ware, in these kilns was reduced from average of over 10 per cent to less than 2 per cent by the use of the FRINK METHOD.

SAVINGS alone have paid for the installation of the FRINK METHOD at this plant every Week that it has been in operation, and it has been recognized that it was one of the best if not the best plant in the east.

*We will take any hollow ware plant in the United States and in 30 days produce savings from 15 per cent to 50 per cent in the burning cost, or any down draft kiln burning any kind of clay material and save 10 per cent to 50 per cent, and do it on a positive guarantee.*

FURTHER, you can, if you will use the FRINK METHOD, do the same thing for years to come with the cheapest class of labor.

LISTEN! DO NOT TAKE OUR WORD Let us send you the names of some that are using our method and getting these results.

**The Frink Pyrometer Co.**

**Lancaster, Ohio, U. S. A.**

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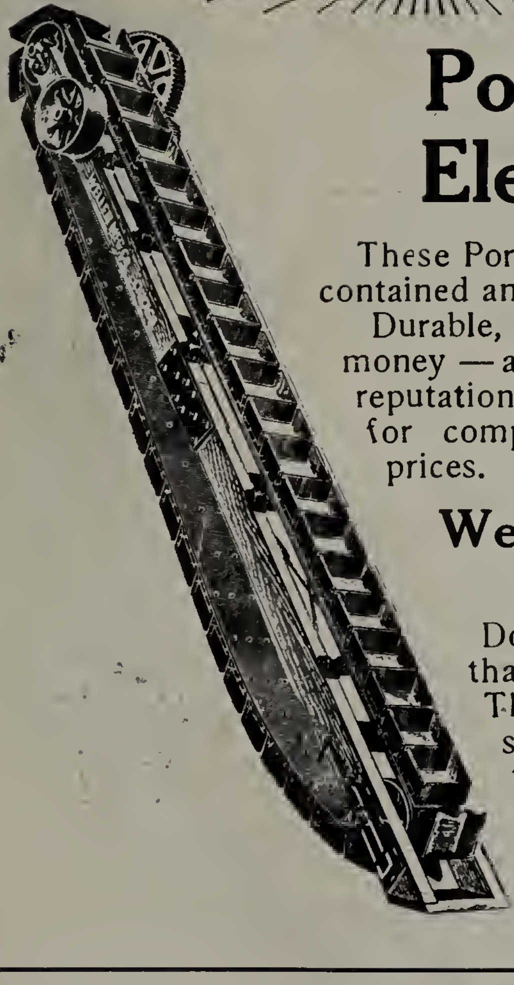

**Portable Elevators**

These Portable Elevators are self-contained and are just the thing. Durable, simple, save time and money — and have the WELLER reputation behind them. Write for complete descriptions and prices.

**Weller Improved Oil Burner**

Does more at less cost than ordinary oil burners. There are other good reasons why you should get the WELLER-Made Oil Burner; write for them.

**Weller Mfg. Co.**

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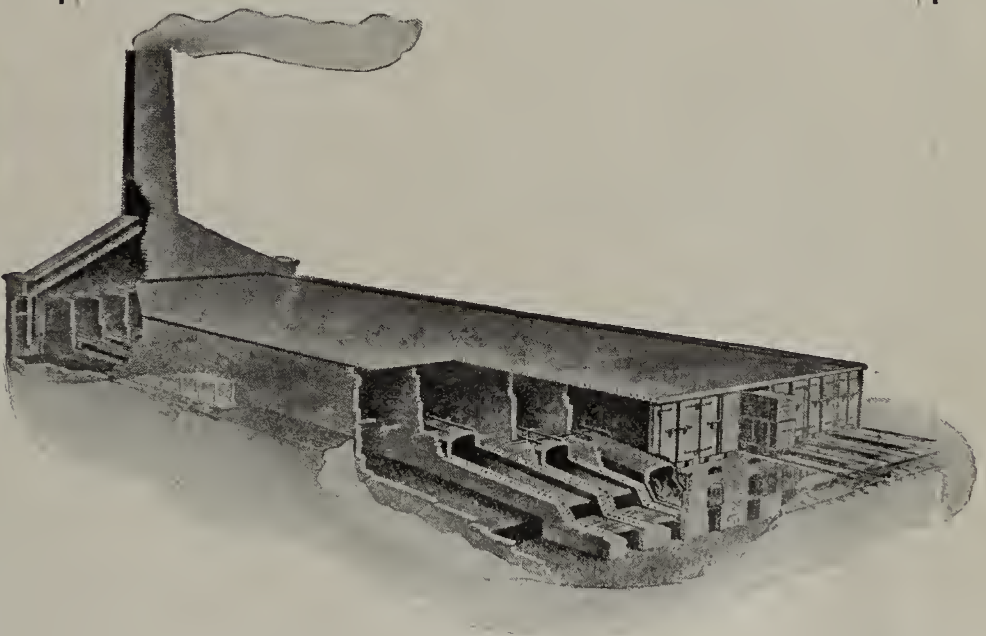
PATENTED JANUARY 11, 1910. No. 946,088

Brick Kilns suitable for all kinds of brick.

Kilns that will burn uniform and hard on the bottom, save fuel and improve the product.

Table Floors, something new, take the place of riddle and solid bottom, practical and very satisfactory wherever built.



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Radiating heat Dryers.

Continuous radiating waste heat Dryers.

Direct waste heat Dryers.

BUILDERS OF BRICK PLANTS

**Wilson Kiln & Dryer Co.**

**111 North 52nd Street**
**PHILADELPHIA, PA.**

Get the advantage of your competitor by building

# The Improved Flue System Kiln

The kiln that keeps two erecting crews busy the year around.

We will contract your work, or will sell you plain, comprehesive working plans and license at a very reasonable price. Particulars cheerfully furnished; correspondence invited.

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DEPARTMENT OF CLAYWORKING AND CERAMICS

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Offers opportunities to students wishing technical instruction which will help them to overcome the difficulties confronting the manufacturer of clay products.

The work required from each student of clayworking in the departments of Chemistry, Physics, Geology, Civil, Mechanical, Electrical, Municipal and Sanitary Engineering, and Art, with their well organized courses and thoroughly equipped laboratories, makes the conditions for effective training in ceramics almost ideal.

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*CERAMIC ENGINEERS*
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Geological Examination of Properties
Clay Testing
Investigations of Manufacturing Propositions
Plants Designed, Construction Superintended and Operations Directed
Driers, Furnaces, Kilns
Remodeling Old Plants Given Special Attention
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*Pamphlet, "Ceramic Engineering." Free*

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Established by the Legislature in 1902 at the New Jersey State College, Rutgers College, New Brunswick, N. J.

Two courses have been provided: the regular course of four years; a short course of two years designed for the young man who has had practical experience in clayworking.

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## OHIO STATE UNIVERSITY

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This department located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses are moderate. The corps of instructors is composed of specialists who have had good practical experience. For information or catalog address

PROFESSOR EDWARD ORTON, JR.
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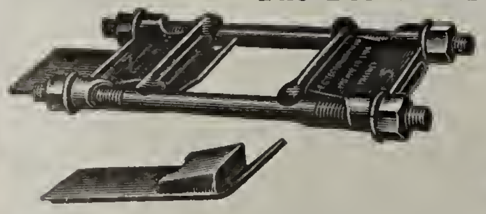
*SEE WHERE THE ARROW POINTS—*

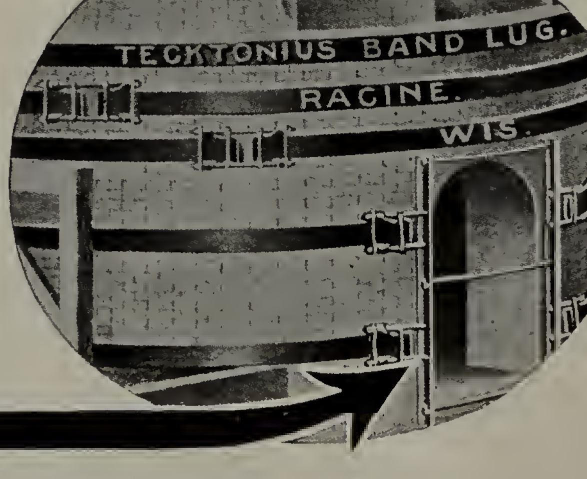
**It Shows the Simple, Effective Door Frame Connection of the**

# TECKTONIUS LUG

It is "penny wise and pound foolish" to try and adapt some home-made, troublesome, unsafe, makeshift for banding your kilns The Tecktonius Lug is



**Cheaper, Stronger, Safer, Neater, Easier Attached and Lasts as Long as the Bands**



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**E. C. TECKTONIUS MFG. CO.**
**Racine Junction, Wis.**

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Fuel and Labor are the two big items in clay-products manufacture, and the successful manager or superintendent is the one who is constantly figuring to reduce these two items. If a plan could be placed before you whereby you could save 25 per cent in your fuel and labor costs,

### YOU COULD NOT AFFORD TO TURN IT DOWN

As a business man you must listen until you have satisfied yourself one way or the other as to the practicability of the proposition. That is all we ask. We believe that we can save you money through the adoption of the Tate, Jones Oil Burning System. It is only fair to yourself that you allow our Engineering Department to place before you fully the cost and a definite statement of just what this system can accomplish for you in the way of saving and increased efficiency. If we cannot show you a practical saving in burning with oil in preference to coal, there is no harm done, and you have satisfied yourself as to the facts. If we can, however, prove to you that you should burn with oil by the Tate, Jones method, there is no question but what sooner or later you must adopt that system.

Be fair to yourself and to your company in this matter and let us place the proposition fairly before you.

### OUR BURNING TEST SERVICE

At a considerable expense we have started a fully equipped testing laboratory and kiln, with which we will make careful tests of burning by oil any form of clay products. These tests are only made in cases where green ware, manufactured into the form of brick, tile or other clay products, is sent to us in sufficient quantity to fill the kiln, and to permit a proper test being made.

## TATE, JONES & CO., Inc.

*Mfrs. Oil Burning Equipment* **PITTSBURG, PA.**

**Chicago Representative, G. E. LUCE, 508 Fisher Bldg.**

# The Martin Anti-Friction Rocking Grate

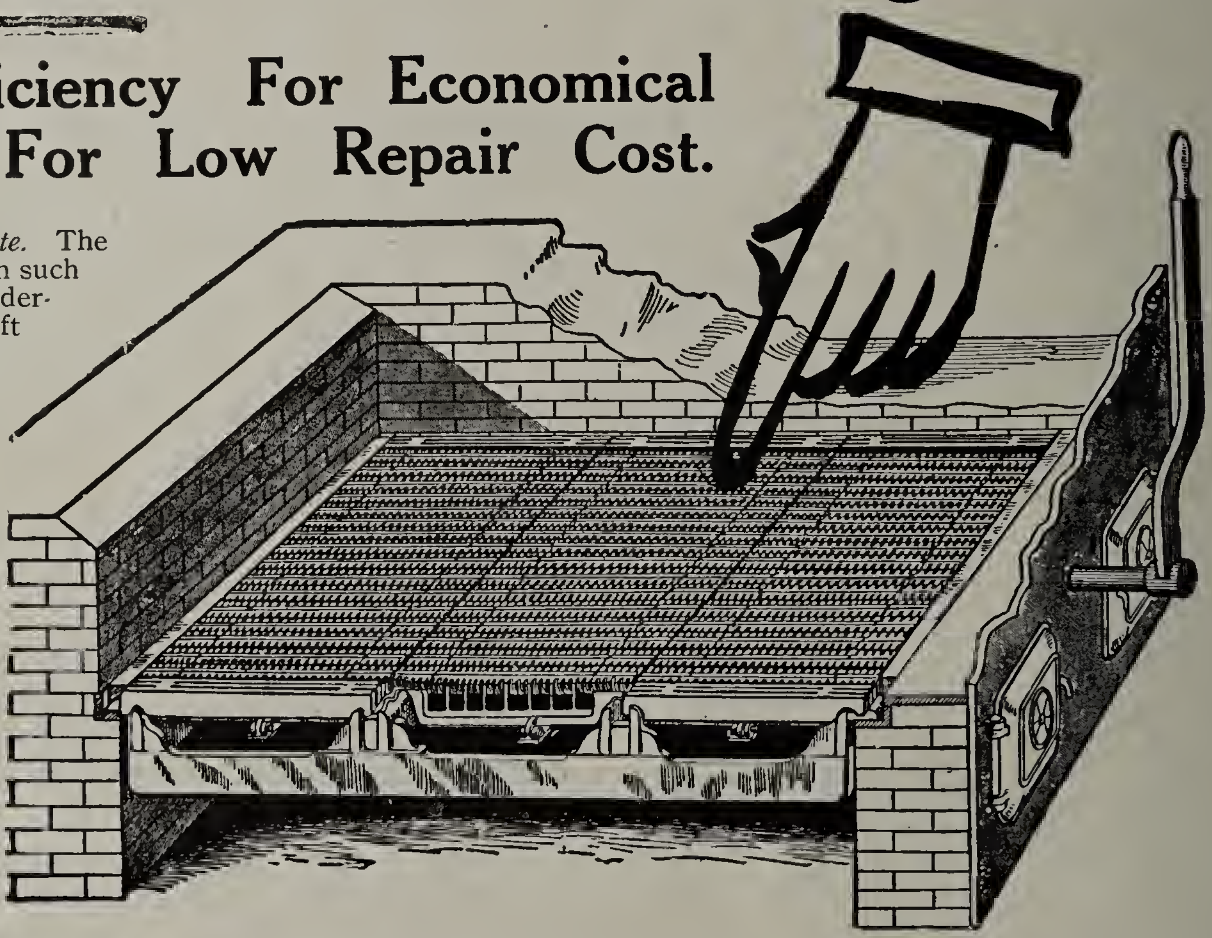
**For Highest Efficiency For Economical Use of Fuel — For Low Repair Cost.**

The Martin *is not a dumping grate.* The bars, which are only 1½″ wide, *rock* in such a way as to thoroughly clean the underpart of the fire without loss of draft or of good fuel. Cheap grades of fuel can be used successfully.

The Martin is a *"fool-proof"* grate. It has no long fingers that can be left sticking into the fire and be burnt off. It returns home *automatically* under any fire.

Its heavy and superior construction make it the most durable you can get. It has many other features that make it the most easily handled.

It will be to your advantage to investigate thoroughly the Martin Grate. Send for Catalog. *Today.*



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## FOR CLAY WORKING PLANTS

## The Davidson Fan

Ideal for Clay Working Plants, because it handles a tremendous amount of air at a low cost and because it is built to work all day and every day without repairs.

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Kilns, and Boilers

Write for Prices and Copy of Catalogue

**BRICK MAKERS**

Many of the largest users in your line, after costly competitive tests and experiments, are now specifying—

**Evens & Howard Fire Brick**

*BECAUSE OF*

QUALITY, PRICE AND SERVICE

We will be pleased to furnish complete information and quote prices on request.

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**SAINT LOUIS**

Established 1856

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Manufacturers of

High Grade Fire Brick

Our "Henry Maurer" No. 1 quality Fire Brick is recognized throughout the country as a standard article. We make all shapes and sizes for kiln-work and all other requirements. Catalogues on application. We solicit your inquiries.

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**FIRE BRICK**

DOVER FIRE BRICK CO.

Incorporated 1870

—— MANUFACTURERS OF ——

Dover and Buckeye Fire Brick

Unexcelled for Kiln Purposes

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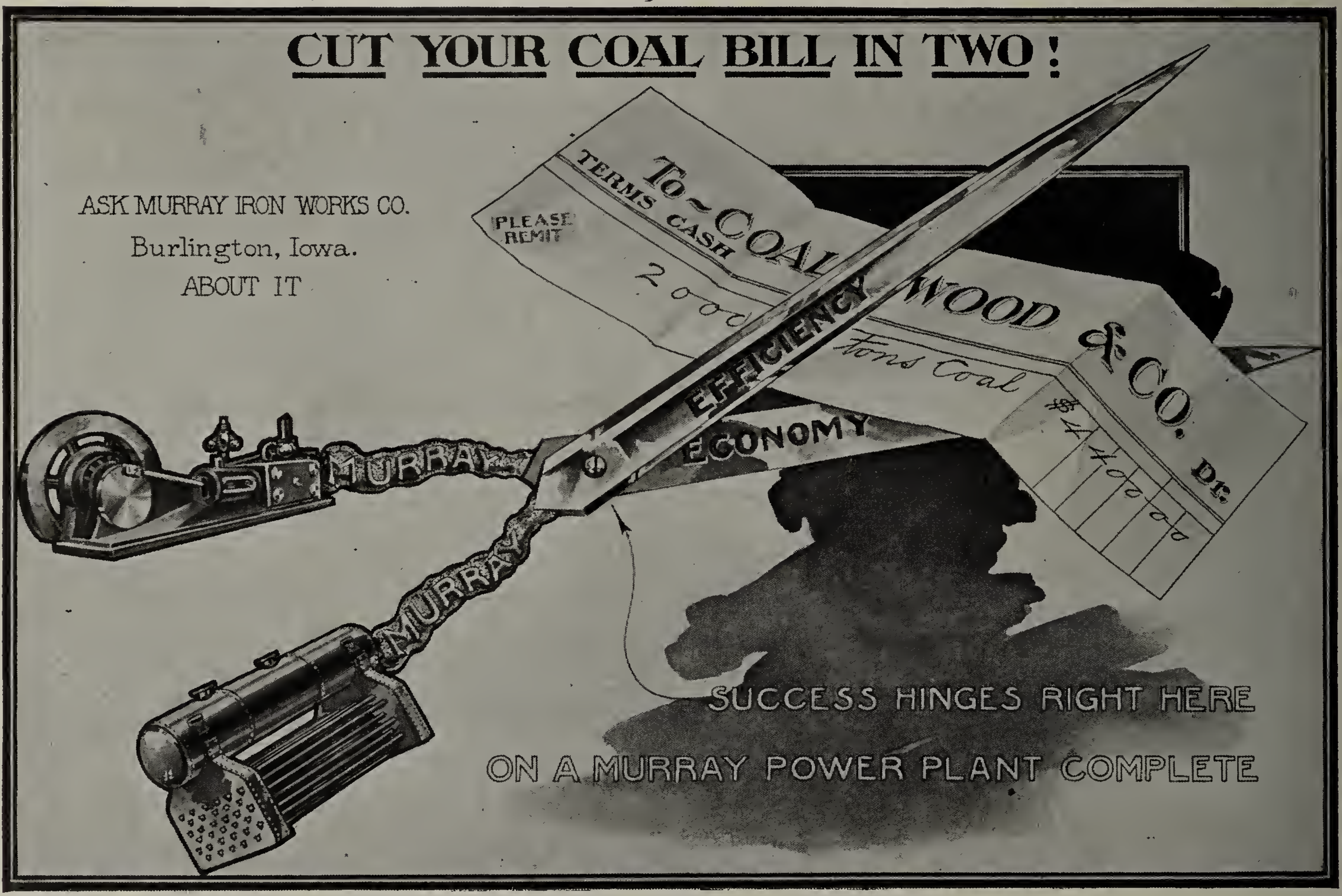

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ASK MURRAY IRON WORKS CO.
Burlington, Iowa.
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DO YOU
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An Employee?
A Position?
To Buy Anything?

HAVE YOU
**FOR SALE**

Used Machinery?
Land, Plant or
Anything Else?

**"Brick and Clay Record"**
**Advertisements Bring Returns**

MARTINSBURG
BRICK DELIVERY WAGON

**Built especially for the quick and economical handling of brick.**

**LOADS IN TEN MINUTES**

**DUMPS IN ONE MINUTE**

**NEVER CHIPS A BRICK**

The Martinsburg Automatic Rear Dump Brick Wagon carries a load of 1400 brick. It is practically indestructible and will stand the hardest service. A wagon you will be proud to see on the street.

**Prompt Service Makes Business**

With the Auburn Brick Wagon you can carry larger loads and give more prompt delivery to the contractor. You can handle the brick more quickly and more readily and deliver on the job in better shape than through the use of any other wagon.

A Martinsburg Brick Delivery Wagon will be an investment that will pay you 50% dividends. Only a limited number of these wagons can be delivered this year, and if you want one you should get in your order promptly.

SEND FOR BRICK AND CLAY WAGON CIRCULAR.

**AUBURN WAGON CO., MARTINSBURG, W. VA.**

Pulsometer Pump

HANG IT

where you will, on a beam, derrick, tripod or set it anywhere without special foundation—**then turn on the steam**—no engine, belt, oil, packing or further attention required. No easily deranged inside or outside mechanism likely to become choked or clogged. No rods to score, no projecting or breakable parts to be injured by rough usage.

**Easy to Install**
**Easy to Operate**

We do not believe there is any other form of pumping apparatus that is so well adapted to the **clay working field** as the PULSOMETER.

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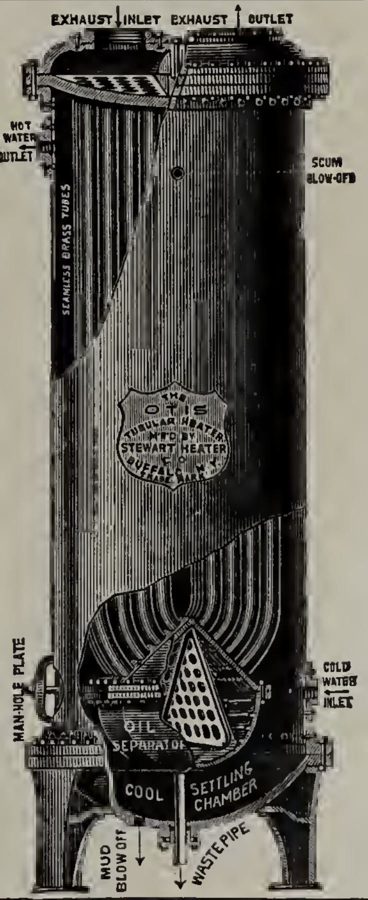
**PULSOMETER STEAM PUMP CO.**

Chicago Office, 223-231 No. Jefferson St. 13 Battery Place, New York



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**Tubular Feed Water Heater, Oil Separator and Purifier**

is not an experiment but a tried and trusted appliance that the makers are not afraid to

**GUARANTEE**

To heat the feed water to the *boiling point* (210 to 212 degrees) with the exhaust steam without causing any back pressure, *also to extract the oil from the exhaust,* so that the exhaust steam after being passed through the heater can be used for other heating purposes, and the water of condensation for the heating system be returned to the boiler without the *additonal expense* of an *eliminator.*

We are so sure of the OTIS that we agree to pay all cost of a trial—freight, cartage, piping, etc.—if it fails to do all we claim for it.

**Catalogue and Prices at Your Service**

**The Stewart Heater Company,**

33 EAST DELEVAN AVENUE - BUFFALO, N. Y.

# WIRE-ROPE

AND

# AERIAL WIRE-ROPE TRAMWAYS

View shows a B. & B. Pat. Automatic Aerial Wire-Rope Tramway which transports 800 tons daily a distance of 1300 feet at a cost of less than 1c. per ton. This tramway is equipped with G. & S. Pat. Automatic Self-Dumping, Self-Righting and Self-Lock Buckets.

ASK FOR CATALOGUE NO. 16

**BRODERICK & BASCOM ROPE CO.**
**St. Louis, Mo.**
**BRANCHES: 76 Warren St., N. Y. Seattle, Wash.**

---

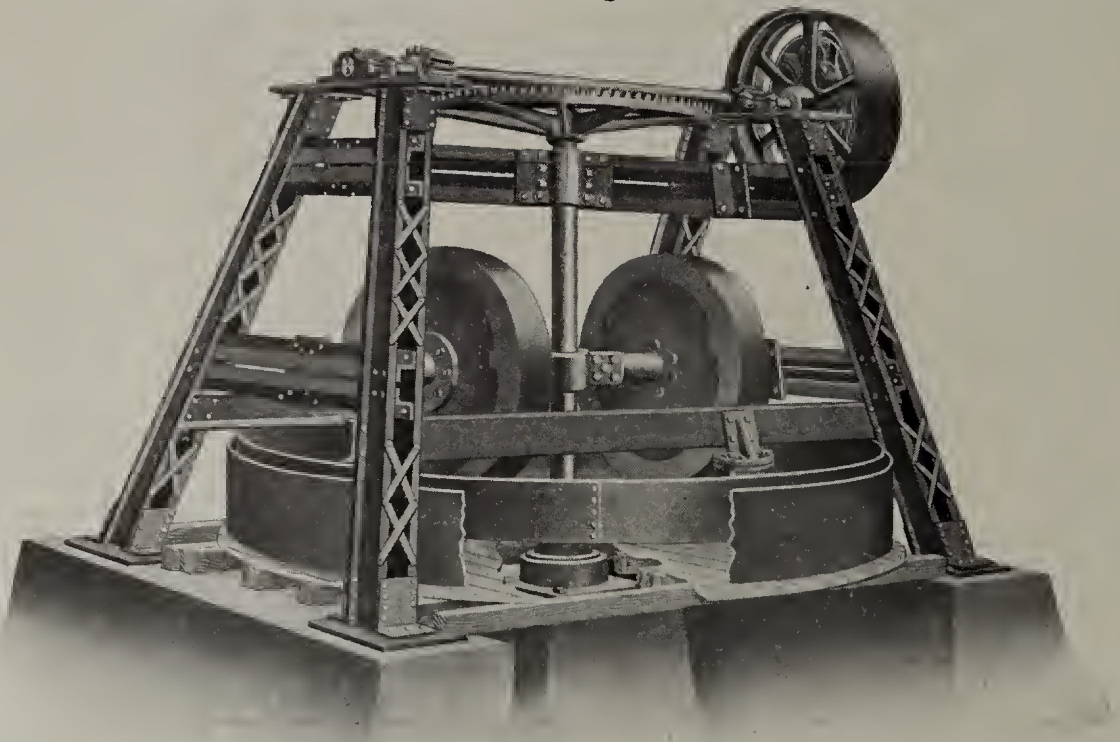
# COMPLETE EQUIPMENT

OF

- Pans
- Presses
- Dies
- Elevators
- Screens
- Feeders
- Etc., Etc.

FOR

Sewer Pipe and Drain Tile Factories



Nine Foot Steel Frame Dry Pan

**The Turner Vaughn and Taylor Co.**
Cuyahoga Falls, Ohio

Chicago Cable Address: WINFIELD
Long Distance Telephone: HARRISON 754

# BRICK
# and Clay Record

*A Semi-Monthly Record of the World's Progress in Clayworking*

(Entered as Second-Class Matter, January 2, 1911, at the Postoffice at Chicago, Ill., under Act of March 3, 1879.)

*Copyright, 1911, By KENFIELD-LEACH COMPANY*

Volume XXXVIII JUNE 15, 1911 Number 12

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How to Analyze Clay

*A PRACTICAL WORK*
*FOR PRACTICAL MEN*

An aid to beginners and full instructions for making clay analysis. 64 pages with Illustrations.

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Chicago

Coloring and Decoration of Ceramic Ware

A book of practical value to all clayworkers.

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ALEX BRONGNIART

With Notes and Additions by ALPHONSE SALVETAT

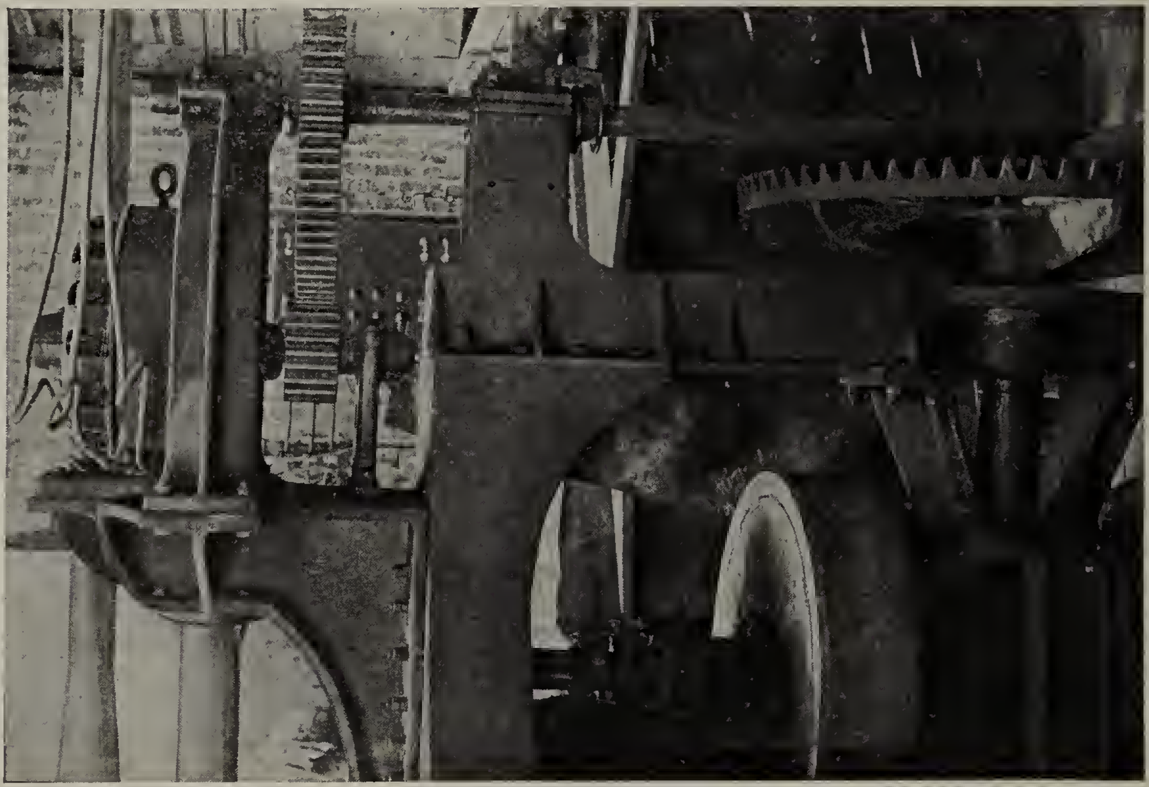
BOUND IN CLOTH
200 PAGES

By Mail or Express, Prepaid to any Address in the World

$2.00

KENFIELD-LEACH CO.
Chicago

Electric Drive has given new life to the Brick-Making Industry—One of the oldest in the world.



Westinghouse Motor Driving Dry Pan

**Westinghouse Motors**

have taken a leading part in the electrification of clay-working plants, and have been an important factor in the development of improved methods of manufacture. Their use secures the following advantages:

**Increased Production.**
**Decreased Maintenance Cost.**
**More Economical Arrangement of Plant.**
**Higher Efficiency of Operation.**
**Reduced Power Cost.**

Progressive clay-workers cannot afford to overlook the cost-reducing and product-increasing advantages to be obtained by electric drive in either the equipment of a new plant, or the remodelling of an old one. Our nearest office will give you some interesting figures as to the savings effected.

**Westinghouse Electric & Manufacturing Co.**
Sales Offices in All Large Cities **East Pittsburg, Pa.**
Canada: Canadian Westinghouse Co., Ltd., Hamilton, Ont.

# SAVING MONEY BETTER THAN BURNING MONEY

It does not matter what it is costing you to burn your brick, if it can be done for half as much you are wasting money by continuing as at present.

Even if your fuel bill is within what you consider reasonable, you are still wasting money if the bill can be split in two.

It has always been the policy of the American Clay Machinery Company to place each department of its organization in the hands of specialists. We have thought that the Clay Industry has grown to such vast importance, and the fight of competing building material has made the demand for the best of clay products so urgent, that the very best efforts were none too good for the Clay Worker.

In carrying out this policy of specializing, The American Company has cut away from any one particular method of burning and is able to handle each problem on its own merits, keeping the net results only in mind and thus making the interests of the manufacturer the paramount point.

We have secured the services of the very best and most able kiln men. They have made a thorough and searching study of kilns and the burning of Clay Products. Naturally, having made this a study of years, they have mastered problems which have seemed impossible to others and are able to do what others have failed in attempting.

When your product comes from the dryer it represents a half of the entire manufacturing cost and yet its real value depends upon how it comes from the kiln. Success or failure depends on the burning.

The best records show that the cost of burning clay products ranges from 35 to 55 per cent of the entire cost of the product. A moment's thought will convince you that this is greatly in excess of what it should be. The reason of this excessive cost is evident. You are consuming tons of coal for which you receive no benefit whatever. You may say this is impossible, but recent tests have shown that only 25 per cent of all the coal consumed in the average kiln is utilized in burning the ware.

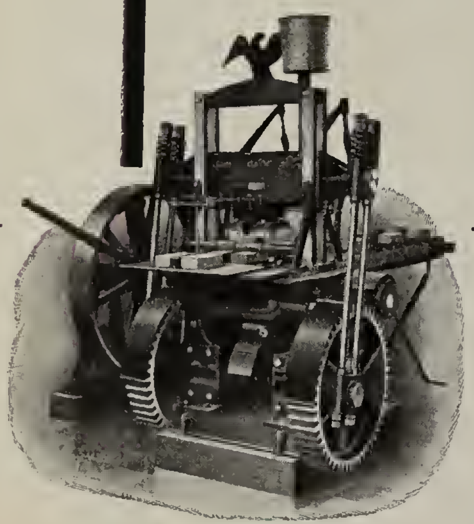
Can you afford to throw away 75 per cent of your fuel just because your kilns are inadequate?

We will be glad to take up this burning question with you. If we can't save you money, we will tell you so. If we do save you money you can pay us from the savings, and you will thus be out nothing.

**The American Clay Machinery Co.**

**BUCYRUS, OHIO**

# The Question of Quality Solved



## The Eagle

IS NOT THE ONLY REPRESS BUILT, BUT IT IS—

The only Repress giving unquestioned satisfaction.

The only Repress never thrown out for incompetency.

The only Repress receiving the unanimous approval of the trade.

The only Repress where repair bills are the exception.

The only Repress without a superior.

The only Repress built for service rather than to sell at a profit.

The only Repress where the profit is greater to the buyer than to the manufacturer.

The only Repress with a record of constant use for years without a cent for repairs.

The only Repress that "Never Disappoints."

When all represses have been weighed in the balance.

When all presses have been through the stress of clay grind.

When the daily record of bricks has been checked for each press.

When the quality of the work is compared.

When the repair bills have been audited and paid.

When these and a lot of other important points have been considered it will be found that The Eagle Repress is far and away the best repress on the market and a cheaper press, in the long run, than two of most any other kind.

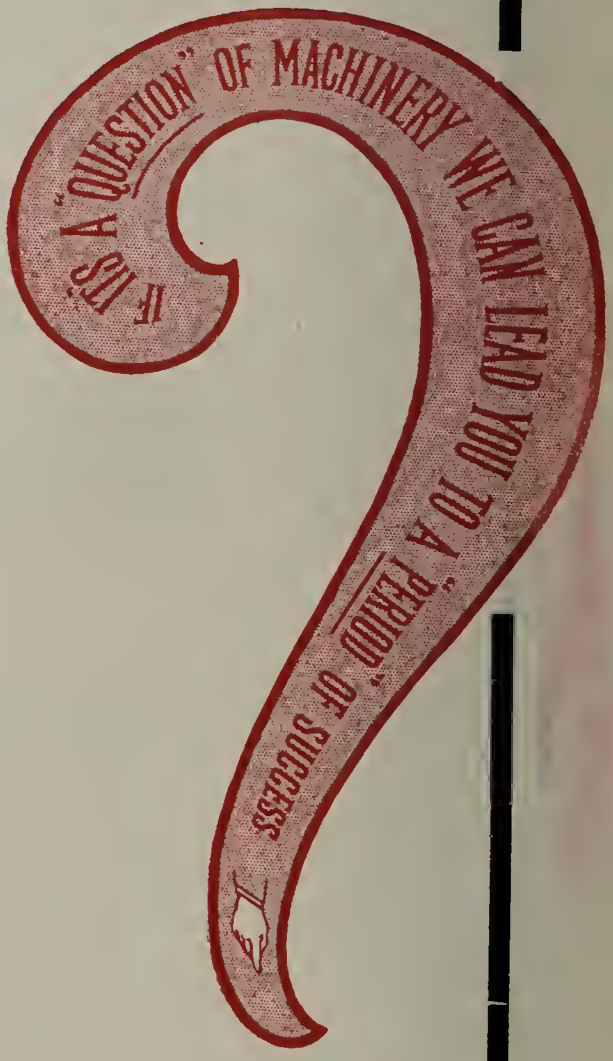
The Eagle Repress is first of all built upon quality. It has the attributes in building and operation which have won it a world-wide reputation and which have and always will maintain it as the **world's leading and best Repress.**

The first Eagle Repress built years ago is still in satisfactory operation, a glowing testimonial of Eagle quality and performance.

For paving and face brick there is no press which will give the daily and yearly output of the Eagle at anywhere near as low cost.

In a word, you will make no mistake in pinning your faith to the Eagle Repress. It belongs to a worthy line of Clay Working Machinery and is a credit to the line. It is "Built Right and Runs Right" and, what is more, it keeps at it day in and day out without repairs.

Send for full particulars about the Eagle. We also build every machine and appliance needed for the manufacture of Clay Products by all processes.


IF IT'S A "QUESTION" OF MACHINERY WE CAN LEAD YOU TO A "PERIOD" OF SUCCESS

## The American Clay Machinery Co.

**BUCYRUS, OHIO**

# The "Make Good" Dryer

**We are building a "Make Good" Dryer.**

When we designed this dryer we called it a Steam Pipe Rack Dryer, but those for whom it was installed have dubbed it "The Make Good Dryer," and as the title has come unsolicited, from those who know, we feel that it must be deserved.

Our Pipe Rack Dryer has many patented features which protect it from infringement and it is by far the most economical system of drying on the market today for plants where it is adaptable. We have cut the drying cost in two for some manufacturers and can do it for others if the conditions are right.

Our Dryer Department will be glad to take the matter up with you and will look over your plant and give you an estimate of the possible saving, together with an estimate of the cost. If we can build you a dryer that will save its cost in a few years it is apparent that such a dryer would cost you nothing, because it would pay for itself. Moreover, after it had paid its own bill, it would bring you dividends, even though you had your money back and had really nothing in the dryer. We solicit an opportunity to take up this dryer with you. We have a new catalogue just issued covering this dryer, both in text and pictures. It's a worthy piece of printing on a worthy dryer. It's yours on request.

Here are unsolicited letters from two of the many satisfied users of the "Make Good Dryer":

Allentown, Pa., May 15, 1911.

The American Clay Machinery Co., Bucyrus, Ohio.

Gentlemen:—The American Steam Pipe Rack Dryer with condensing vacuum system, which was recently sold to me and installed on my brickmaking plant by your company, is a success and I am highly pleased with it. I will be glad to show it and to recommend it to anyone wishing a first-class Soft Mud Brick Dryer.

Very truly yours,

ED G. MATTERN.

---

THE BROOKSIDE BRICK COMPANY,
Louis Koblitz, Treasurer,
5639 W. 56th St.

Cleveland, Ohio, May 29, 1911.

American Clay Machinery Co., Bucyrus, Ohio.

Gentlemen:—The pipe rack dryer you installed for us has given such splendid satisfaction and so far exceeded our expectation that we feel indebted to you to the extent of writing you and telling you of our experience with it during the past three months.

We have 30,000 brick in the dryer by ten o'clock each morning and on these we turn the exhaust steam to start the drying; by two o'clock in the afternoon the dryer is completely filled with 60,000 brick, then the live steam is turned on the entire dryer. The first 30,000 brick are uniformly dry by eleven o'clock at night and the last 30,000, which did not have the benefit of any exhaust steam, are uniformly dried by three o'clock the next morning, at which time all steam is shut off the dryer.

The drying is accomplished with one boiler of 100 H. P. capacity at a fuel cost not exceeding 15 cts. per thousand brick. The small boiler capacity required, and especially the low drying cost has far exceeded our expectations.

We are well pleased with the construction of our dryer, as all the material used was first class in every respect, and we were also well pleased with the courteous treatment we have received from you.

We would be only too glad to show our dryer and explain its operation to any of your prospective customers, and tell them how well pleased we are with it. We think you have the best dryer on the market and the brickmaker should investigate it before buying any other.

Yours truly,

THE BROOKSIDE BRICK CO.

**We build every Machine and Appliance required to manufacture Clay Products by all Processes**

## The American Clay Machinery Co.

**BUCYRUS, OHIO**

# Sand-Lime Brick Machinery

SAND-LIME BRICK BUILDING.

Some of the very best buildings of the country are being built of Sand-Lime brick. The high class of buildings, of which this type of brick is a part, indicates the excellence of the quality of Sand-Lime brick. No brick present a better appearance and few if any have a more lasting quality. The governments of both Germany and America have adopted these brick as standard and the popularity of Sand-Lime brick is increasing.

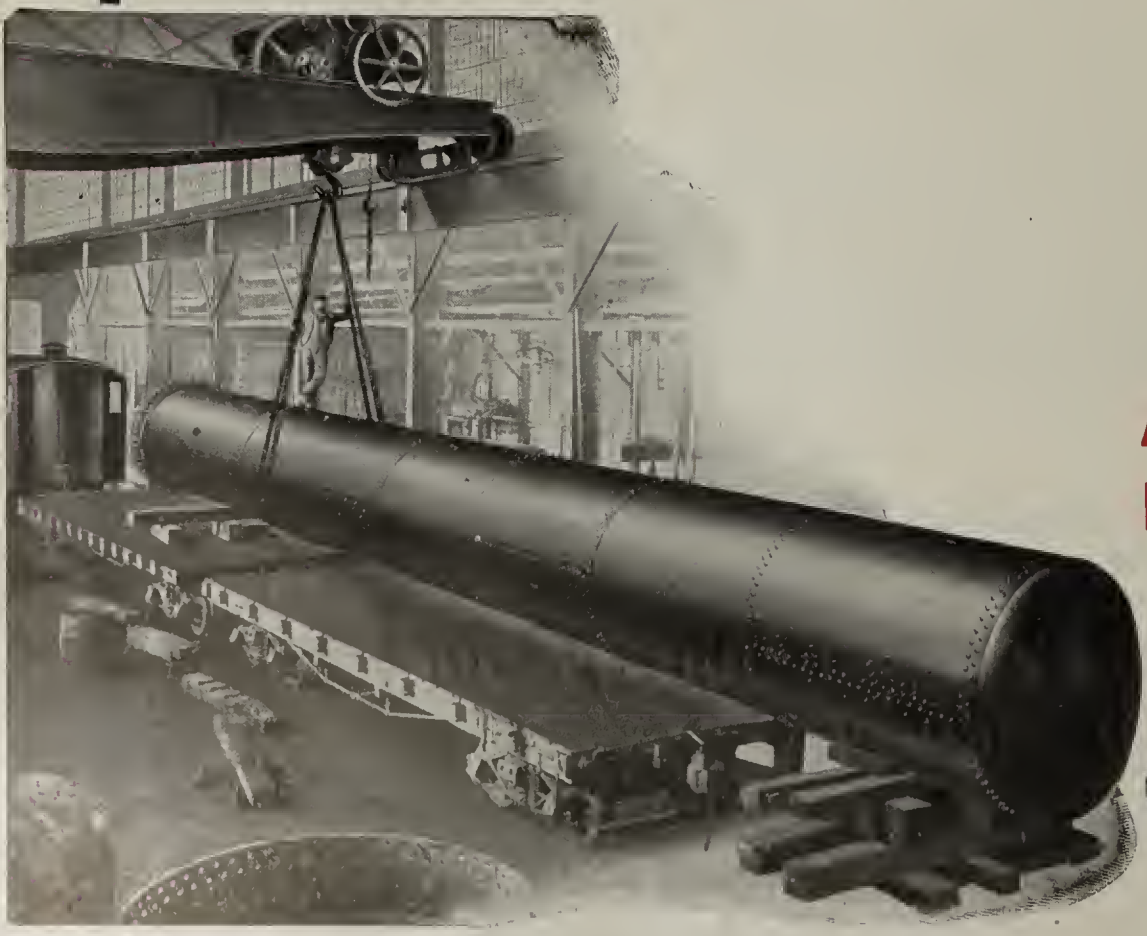
In certain localities it is the only brick which can be made and its production is a source of great profit.

We are building a complete line of Sand-Lime brick machinery; from the heaviest presses to the smallest appliances we are making a complete line embodying in each machine and appliance our well-known excellence of construction and design. We also build machines of varying capacity so that, no matter what capacity is required, we can supply exactly the machinery needed.

We will be pleased to furnish printed matter and particulars relative to any Sand-Lime brick machinery you may require or will design and equip complete plants. If you are interested please let us hear from you on the subject.

**THE
AMERICAN CLAY
MACHINERY CO.**

**Willoughby,
Ohio**



LOADING A HARDENING CYLINDER.

# Brick Classified Department

## A Bargain Counter of For Sale and Want Advertising

**"Brick and Clay Record" Ads are Result Producers. Cash must accompany all orders.**
**One half inch (15 to 25 words) $1.00 per insertion. One inch (30 to 50 words) $2.00 per insertion.**
**$2.00 per insertion for each additional inch.**

## Opportunities to Purchase or Lease Clayworking Plants Cheap

### For Sale.

One 3-kiln tile plant in Ohio. Everything new and most modernly equipped. Good clay and excellent market. Bad health reason for selling. Address 8-R. B. C., care of "Brick." 8-1

### Wanted.

To buy a brick plant having shale or fire clay raw material and round down-draft kilns. Give complete description. Address: Lock Box No. 743 Uhrichsville, Ohio. 4-TF

### Opportunity.

A good chance for party with ten or fifteen thousand dollars to connect himself with a company just installing their plant. Face building brick as well as plenty of fire clay that will make No. 1 fire brick. Address: 3 E. A., care of "Brick and Clay Record." 3-2-TF.

### For Sale

Four and one-half acres of land on railroad track in town corporation and surrounded by rich farming country which needs tiling. Machinery consists of steam power in good condition, the engine 40 h. p. A Brewer tile and stiff-mud machine, Monarch soft-mud brick machine, together with molds, dies, belting and other attachments, complete; also dump cart, barrows, trucks and other miscellaneous equipment. Price $750 for all, or $525 for machinery. This will be a case of getting something for nothing. Address: S. B. Cook, Harrisville, Mich. 6-2-1

### For Sale or Lease

We own 100 acres in fee simple, all underlaid with a 3-ft. vein of the best grade of flint clay and 17-ft. vein of plastic clay. This is one of the best clay propositions in the country, and we have an operating coal works on adjoining property and can furnish coal, and have ample siding and switching room for any sized brick plant. We will either sell this clay outright, lease it or go in with any good, responsible party or parties that understand the brick business and have some capital to help put in a brick plant. For full particulars write to the Massillon Peacock Coal Co., Mineral City, O. 5-2-3

### For Sale.

Soft mud brick plant, 35M. daily capacity, 26 acres of land. Located in city of 8,000, in the center of a large paper-mill district. Excellent shipping facilities, with big local market. Will be sold at a bargain. Address, Grand Rapids Brick Co. Grand Rapids, Wis. 5-6-P

### For Lease or Sale

A well equipped pressed brick plant located near Seattle with excellent markets up and down Sound. On saltwater and railroad. Excellent opportunity for practical man. Owner not a brickmaker. Unlimited amount of clay. Capacity 40,000. Address J. T. Armstrong, Ballard, Wash. 4-TF

### For Sale.

Modern brick plant complete. 40,000 daily capacity. Chambers brick machine, automatic cut-off, etc. American Blower Co.'s drier, Atlas cars. Entire plant practically new and in perfect running order. Please address: T. L. Montague, No. 120 West Eighth St., Chattanooga, Tenn. 4-TF

### For Sale

Brick yard, capacity 35 M.; wire cut, repress and sand molded machines; 11 acres fine clay deposit; railroad siding to kilns; three lines railroads and water transportation; cheap wood. Foreclosure sale, one-third cost of plant. Bonner County Natl. Bank, Sandpoint, Ida. 5-2-4

### For Sale

$8,500, complete, up-to-date, 40,000 capacity brick plant; fine machinery, material and market. In Oklahoma town of 15,000; the only plant there. Have other business interests and am sacrificing for quick sale. This plant will inventory now $25,000. Address: 6-N. F., care "Brick and Clay Record." 6-2-1-P

### For Sale

One of the very best brick plants in Georgia; all modern conveniences. Inexhaustible bed of fine river clay. Demand for entire output; yard has been in operation ten years. Will sell for half its value. Owner wants to retire on account of age and health. Write, or better come and see, yard in operation every day. Terms: Part cash, balance to suit. L. F. Patterson, Bainbridge, Ga. 6-2-1-P

### FOR QUICK SALE

One of the best money-making, and modern tile and brick plants in Northwestern Ohio.

An exceptional opportunity for some one who wants to step into a well established and going business located in the best agricultural district in the Maumee Valley. Ready sale for the entire output of the plant. Located on good railroad with private tracks into yard.

Plant is thoroughly equipped with fireproof buildings, A1 machinery, boilers, engines, kilns, tools, clay, waste heat dryer.

Outside interests induce the selling of the plant; but a manager who is one of the best tile burners in Northwestern Ohio will take interest with reliable parties.

Terms: Desirable real estate as part payment, and balance to suit purchaser.

Address for business, M. C. S., care "Brick and Clay Record."

6-2-2

# CLASSIFIED DEPARTMENT

### Tile Clay for Sale

47 acres of land, on which is located 20 acres of the finest clay, suitable for making roofing tiles, etc. Location for yard is graded, as is also the tramway to the clay pit. This property has railroad sidetrack, and any one engaged in tile business would have practically no competition here, as there is only one other such plant in the state so far as we know. We will be pleased to submit samples of the clay, and name a price to any one interested. Washington Brick Co., Washington, Ga. 6-2

## SPECIAL

### Opportunity

Do you know of any one wanting one-third interest in model dry pressed 20,000-capacity brick plant; money required, $6,000; if you do, write Anton Vogt, Guilford College, North Carolina; Chisholm, Boyd & White (H. J. Flood, Mgr.), Chicago, Ill., or 6-C, care "Brick and Clay Record." 6-6-P

### Back Copies of "Brick" Wanted

I desire to purchase back copies of "Brick" from January, 1909. Please address A. Malinovszky, 1341 Nicholas Bldg., Toledo, O. 6-1

### Auto Cases and Tubes, First Quality Guaranteed

28x3, $10.30 tube—$2.75. 30x3, $11.30 tube—$2.85. 30x3½, $15.45 tube—$3.75. 32x3½, $18.70 tube—$4.25. 34x4, $27.45 tube—$5.75. Send for list of all sizes. I ship, allow tires to be examined, on receipt of 10 per cent amount of order. The largest tire dealer in the Central states. W. Vanderpool, Springfield, O. 5-tf

### Business Wanted

We build first-class kilns, dryers, buildings, and other brick work at a reasonable price. We solicit your business. Magee & Jones, Brick Contractors, New Brighton, Pa. 6-tf

When you answer a *"keyed"* ad in Brick and Clay Record don't address the Kenfield - Leach Co. Just put in the Letter and Number given in ad and then "care of Brick and Clay Record, 423 Plymouth Court, Chicago, Ill." We'll send it to the proper party.

### For Sale or Trade

A handsome Kimball Victoria, price $1,800; practically new. Lady's high-seated Studebaker Stanhope, price $350. Have no further use for them, as I have purchased automobile. Will take low cash offer or trade; make me an offer. Address 2-L., care of "Brick and Clay Record." 2-TF

## HELP WANTED

### Wanted

Foreman for fire clay dust plant; must be familiar with dry pan and gas engine. Write Frank B. Pope, 1403 Arrott Bldg., Pittsburg, Pa. 6-2-1

### Fine Opening for "Hustler"

Must be taken advantage of at once.

Manager wanted for soft-mud brick plant. Must be able to take care of gas engine, set up and burn brick, understand machinery and be experienced in process of manufacture. Will pay $2.50 to $3.00 per day, steady work all summer. Good location, nice town. Write at once, giving full particulars, etc. Address: 6-N.

### Wanted

At once, by a large Ohio concern, manufacturing sewer pipe, tile and other special machinery, a competent representative for the southern states, southwest and Pacific slope. One who is thoroughly practical in the line, from experience; is a hustler, a business getter and who is capable of giving the proper representation between the buyer and the seller. Strong references required. Address 2-M., care of "Brick and Clay Record." 2-1

## Tile and Brick-Making Equipment Machinery and Supplies

### Second-Hand Brick Machinery For Sale—Cheap

1—2-mold brick press.  
2—3-mold brick presses.  
1—6-mold brick press.  
2—42-in. pulverizers.  
1—36-in. pulverizer.  
1—Set of large roll crushers.  
1—Freese combination brick and tile machine.  
1—Clay mixer.  
1—20-h. p. steam engine.  
1—500-h. p. automatic Harrisburg engine.  
H. P. soft-mud machine with 18 molds, including 3,500 pallets.  
Let us know your wants.

Scott-Madden Iron Works Co., 425 S. 4th St., Keokuk, Ia. 8-TF

### For Sale.

Sand Lime Brick Hardening Cylinders in stock. Franklin Boiler Works Co., Troy, N. Y. 3-2-TF

### For Sale

20 h.p. engine, slide valve, 50 h.p. boiler, kiln, grates and doors, 9,000 pallet boards, shafting, pulleys and drum, brick wheelbarrows. All in very good condition. Address Berea College, Berea, Ky. 4-2-6-P

### For Sale

Five-foot dry pan, bucket clay elevator, two-mold dry press, made by American Clay Machinery Co. 26 feet 16-in. clay conveyor, made by J. D. Fate Co. Dunlap Perfect clay screen; all in good condition. Will sell at half price. Gold Bros. Brick Co., Big Stone City, S. D. 5-tf

### For Sale

One split iron pulley, 68 in. diameter by 14 in. face, bored for 2 15/16 in. shaft. Key seat and set screw. This is new pulley, only been used 10 days; found it too small for what we wanted. Cost us $55, will take $35 on board car. Watertown Pressed Brick Co., Watertown, S. D. 6-2-2

### For Sale

One Style A, Henry Martin brick machine, practically new, capacity 40,000 per day. Cost $750. Will sell for $300 cash.

We also have for sale one 8-ft. American Clay Machinery Co. wet pan at a very reasonable price. P. O. Box 27, Albany, N. Y. 6-2-1

### For Sale

One 4-mold standard pattern Boyd brick press made by Chisholm, Boyd & White Co., Chicago. Price $600.

One E. M. Freese & Co. 12-ft. pugmill, double-geared. Price $150.

One E. M. Freese & Co. cutting table for automatic cutter, new. Price $20.

One Atlas engine, 90 h. p. Price $300.

All the above machines are being cleaned and put in perfect working condition in our shops and will be shipped out under a guarantee. Address: Bolivar Foundry & Machine Co., Bolivar, Pa. 6-2-TF.

### Brick Machinery for Sale.

190-ft. section Jeffrey No. 110 chain pan conveyor, two 7-ft. and one 9-ft. Penfield dry pan, Penfield No. 20-A plunger brick machine, Penfield sewer pipe press, Raymond Columbia steam repress, Raymond No. 3 Perfection hand repress, 14 Carnell hand represses, 237 double 6-deck brick bars (33-in. gauge), for Sharer dryer, 7 transfer cars, 4 turntables, portable track, 100 light Colt's acetylene gas machine, two 80-h. p. Fitchburg boilers, pulleys, shafting, etc. The Powhatan Clay Mfg. Co., Richmond, Va. 6-4

# CLASSIFIED DEPARTMENT

**For Sale**

Pine pallets or tile boards, mostly 3 ft. x 18 in., 1-in. thick, in good condition. Will sell cheap. Address: P. O. Box 27, Albany, N. Y. 6-2-1

**For Sale**

One Scott-Madden clay gatherer and plow complete, in first-class good mechanical condition; has only given service a very short time. Address 6-N. J., care "Brick and Clay Record." 6-2-1

**For Sale**

Sixty chamber wooden clay filter press; also two 5-ft. buhr mills for glaze grinding. For particulars and prices address, "Pottery," room 212 Wilkinson Bldg., Trenton, N. J. 6-2-1

**For Sale.**

Madden 5 B. Tile machine and tile dies, 3 to 12 in., two end cut brick dies and one side cut brick die. A soft-mud brick machine. Hercules Sr., capacity 40M. One Pulsometer steam pump No. 2. All in A-1 condition. W. E. Lyon & Co., Carthage, Ill. 4-TF

**For Sale**

Two pug mills, A1 machines; one 16-ft. mix, other 12-ft., complete with paddles and extra gears; 1 set extra shafts; also 50 brick cars for sand-lime brick. Flint Sandstone Brick Co., Flint, Mich. 5-2-3

## POSITIONS WANTED

**Wanted**

Position as manager or superintendent of fire brick plant. Practical experience from mine to finished product. Will go anywhere. Best of reference. Address "6-D," care "Brick and Clay Record." 6-2-p

**Wanted**

Position in selling department of large face-brick plant. Have had entire charge of selling department in two large plants, also selling experience in other lines. Best of recommendations. Address: 6-N. E., care of "Brick and Clay Record." 6-2-1

**Wanted**

Position as manager or superintendent of good brick plant; ten years' experience; best of references; can make good. Address: 6-N. G., care of "Brick and Clay Record." 6-2-1

**Wanted**

Position with reliable clayworking establishment in the engineering and construction of new plant. Have made a special study of this work. Extensive experience with successful plants, technical graduate, can furnish the very best of recommendations. Address: 6-N. C., care of "Brick and Clay Record." 6-2-1

**Wanted**

Position as manager or superintendent of either dry-press or stiff-mud brick plant, by an experienced brickmaker. Can burn in either up or down-draft kilns. Paving brick a specialty. Address: 6-N. A., care of "Brick and Clay Record." 6-2-1-P

**Wanted**

Position as general manager with brick plant, stiff-mud or dry-press, technical graduate, 30 years of age, successful experience with large plants in the East and in the Kansas gas belt; past record will guarantee success. Very best of recommendations from former employers. Address: 6-N. D., care of "Brick and Clay Record." 6-2-1

**Position Wanted**

Superintendent for expert work. Expert in brick, tile and fireproofing, erecting, altering and equipping plants. Valuable assistance in testing out clays for new companies. References furnished. Address: 6-N. B., care "Brick and Clay Record." 6-2-2

**Wanted**

Position as burner or superintendent of paving or building brick plant; best of references furnished. Address H. B., care of "Brick and Clay Record." 5-2-TF

# Drain Tile Makers

## Protect Yourselves from the Concrete Craze

You have suffered loss in sales through the competition of worthless cement tile. You have been undersold by this inferior tile.

**Concrete Tile Would Not Find a Market if people Knew The Truth**

Teach them the truth by circulating among them this 16 page statement of facts. A document containing the opinions of leading authorities on

# The Life of Portland Cement

Remember this is the reprint, including both Wheat articles, the Bowers article Montana Bulletin and statements of other authorities, forming the most complete and convincing arguments ever published against the use of cement for drain tile.

*Send for Free Sample—Prices on Application*

BRICK AND CLAY RECORD, 423 Plymouth Court, Chicago

# CLASSIFIED DEPARTMENT

## Engines. Boilers and Power Equipment

### For Sale Cheap.

Second-hand boiler, 12 ft. by 54 in.; 40 tubes 4 in. diam. One second-hand Nagle slide valve engine, size 10x16. one second-hand Cookson feed water heater, oil separator and filter combined. All in first-class condition. If you are in need of any of the above, write for price to-day. The Hinde Brick & Tile Co., Sandusky, Ohio. 5-TF

---

### REBUILT ENGINES AND BOILERS

### For Sale.

**Engines—Corliss.**

20x48 Wheelock, 18x36 Ohio Heavy Duty, 14x42 Hamilton, 14x36 Vilter, 12x36 Allis, etc.

**Engines—Automatic.**

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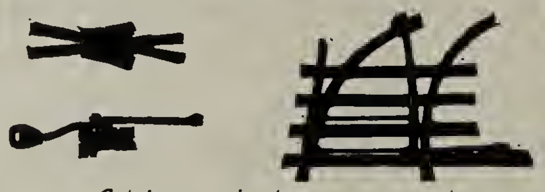

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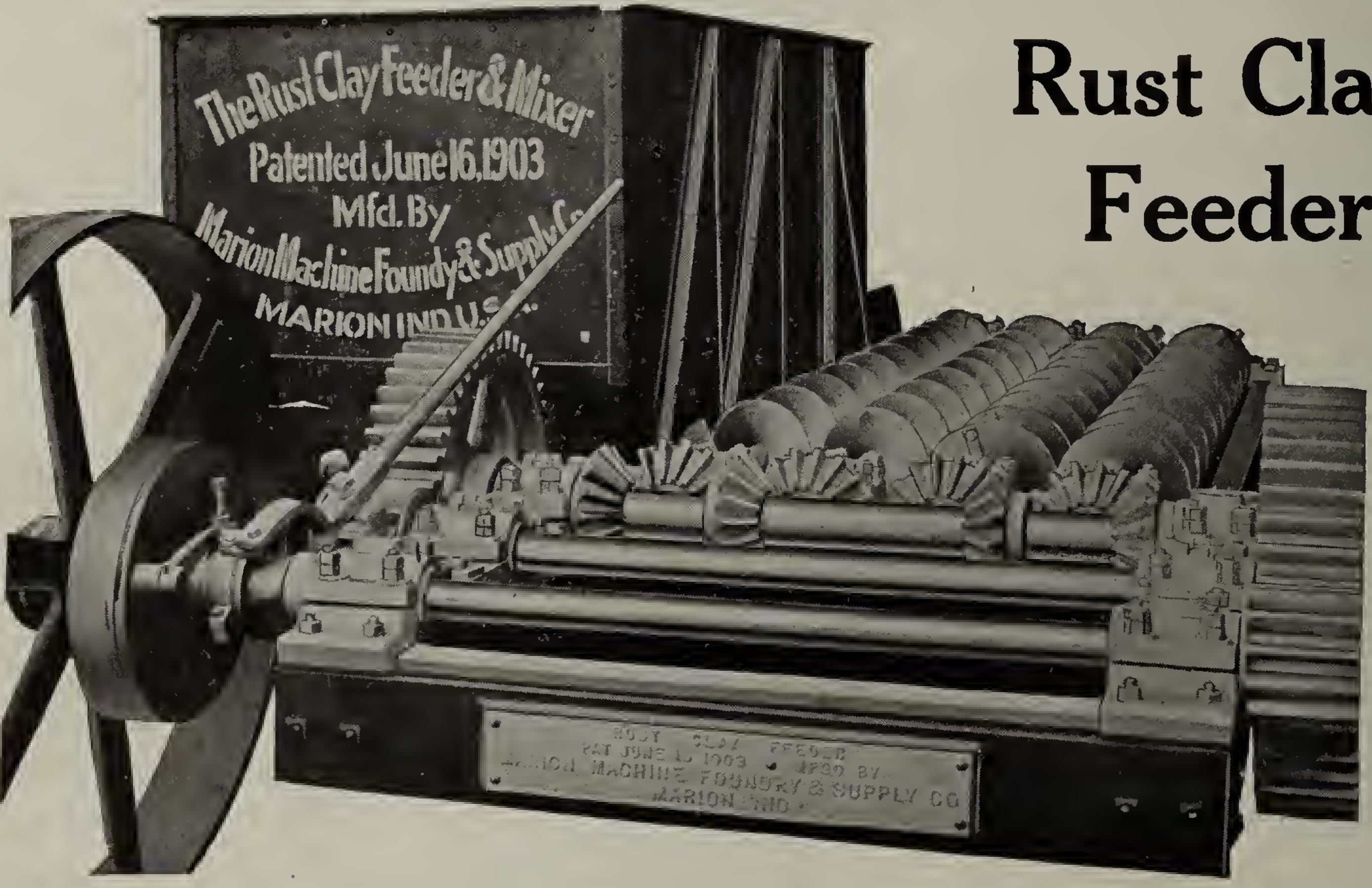
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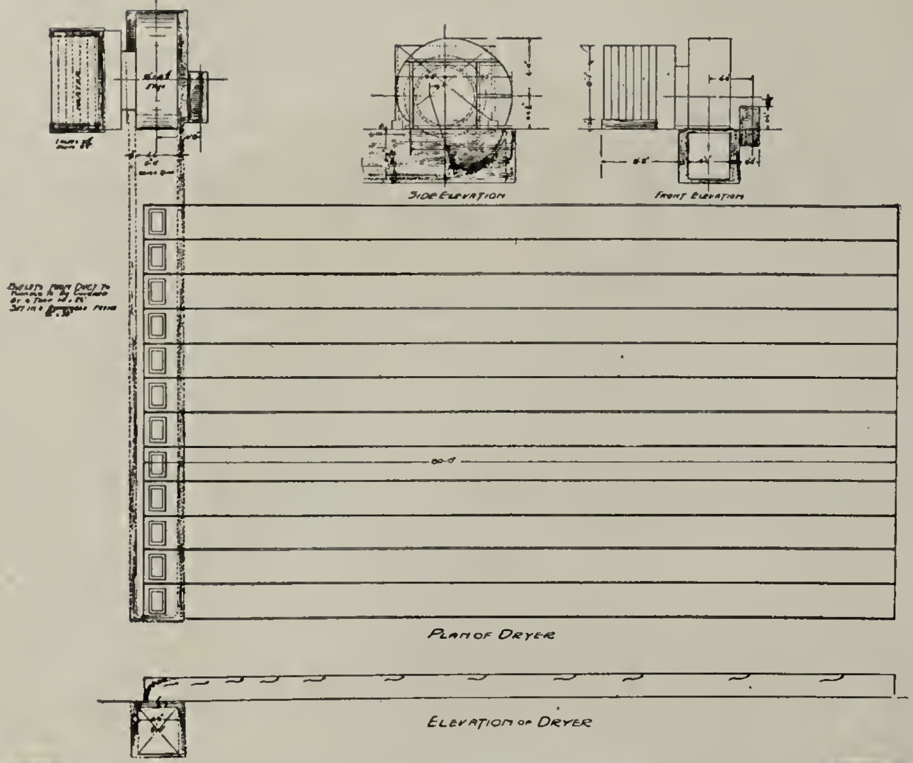

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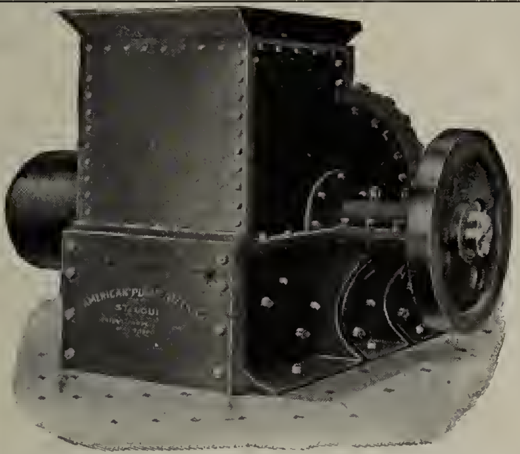

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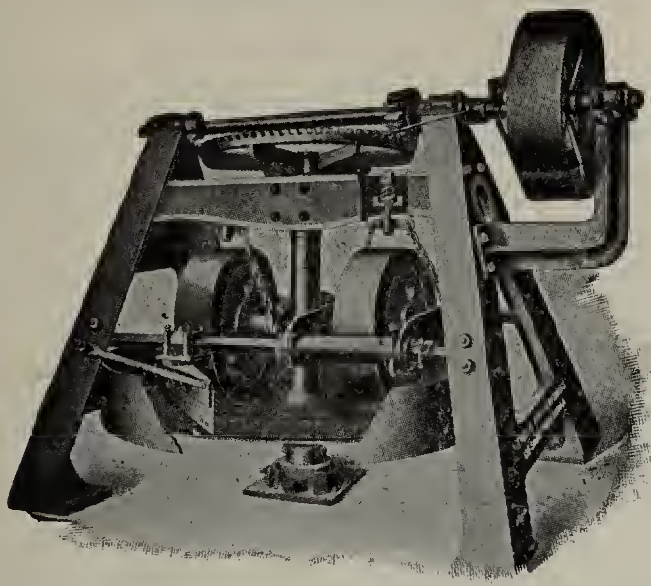

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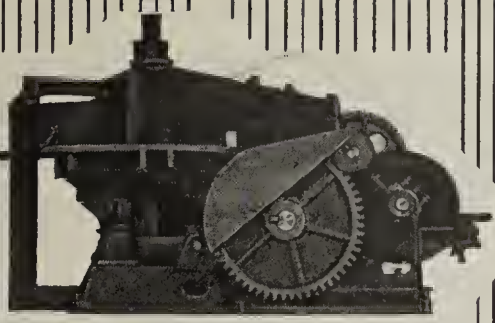

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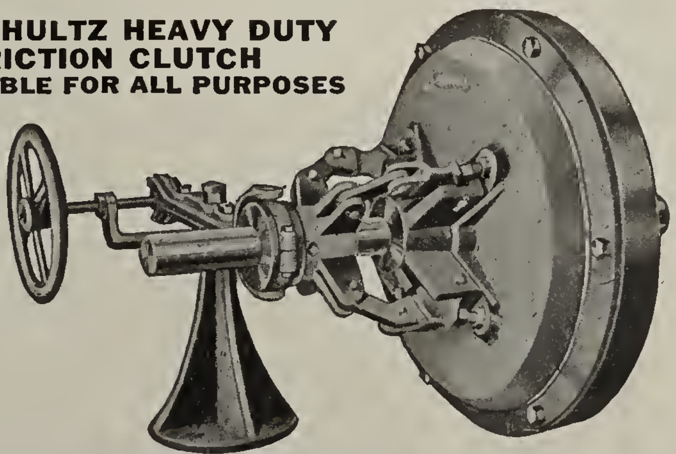

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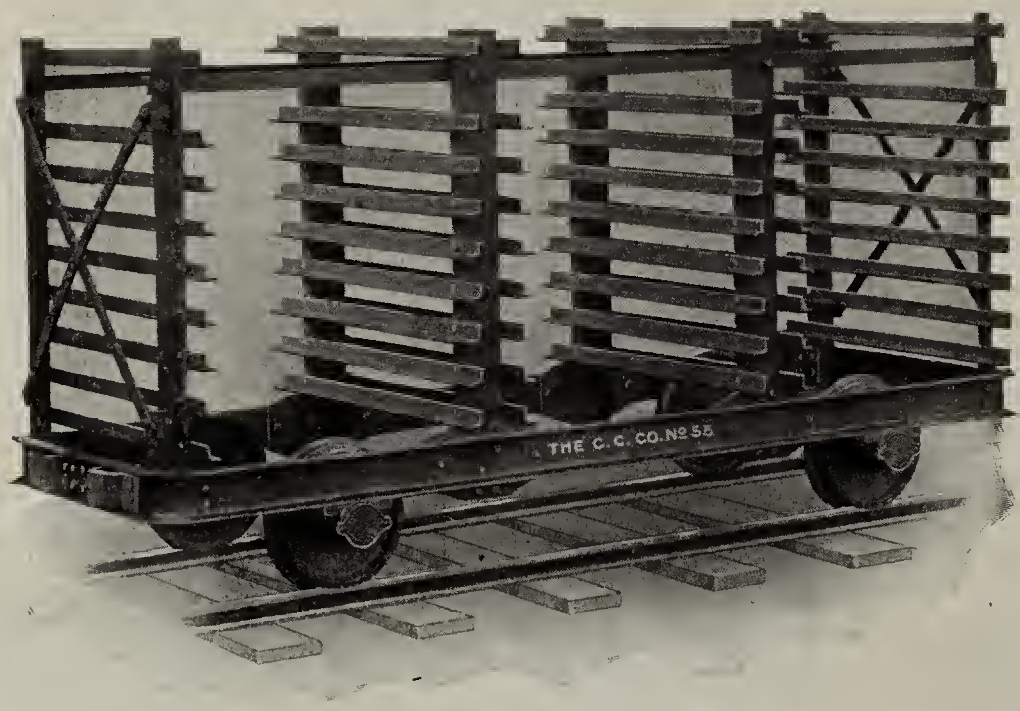

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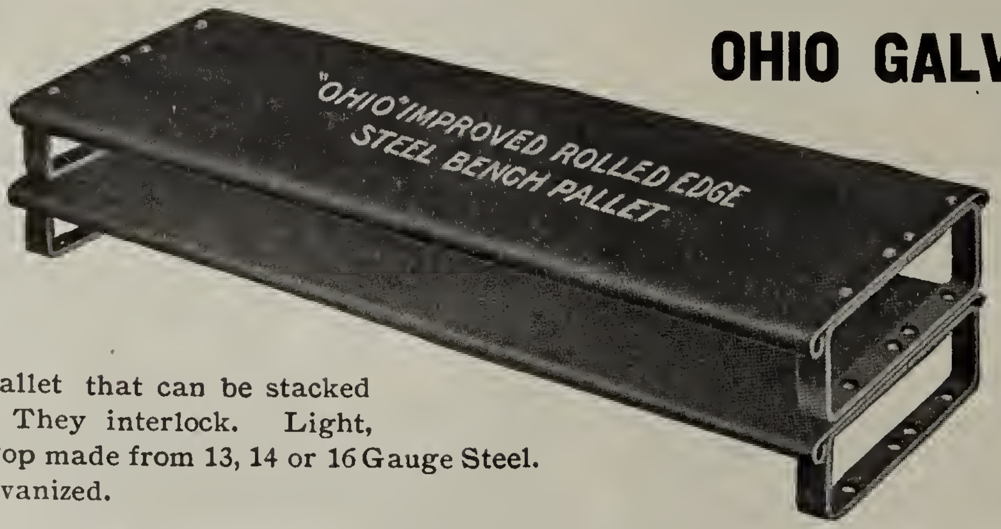

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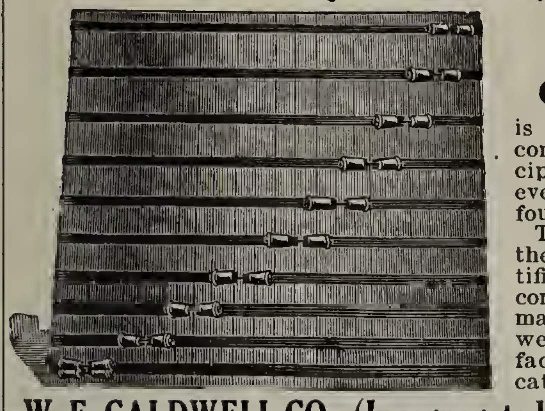

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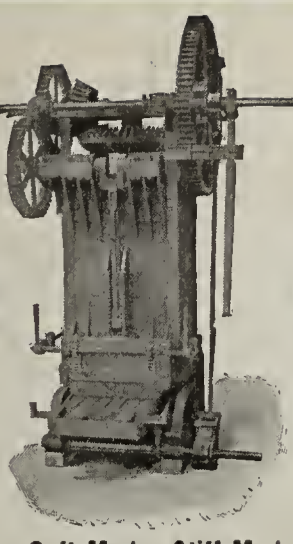

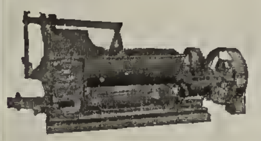

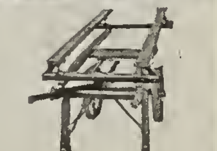

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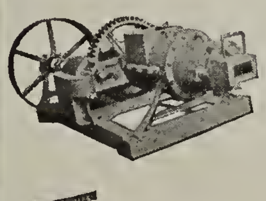

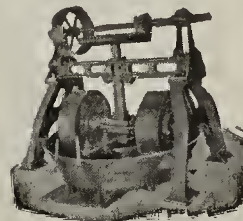

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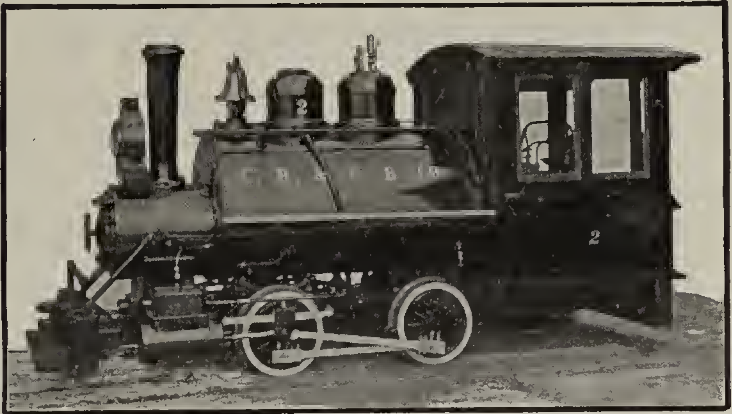

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## SAND LIME BRICK PLANTS

SAGINAW SANDSTONE BRICK FACTORY
Single Press. Capacity, 44000 Brick per day and night.

NOTE

The press in this plant is now entering its tenth year of service. In the year 1908 it averaged 20,190 brick per day of ten hours. In 1909, 21,402 brick. In 1910, 25,682 brick per ten hours.

We can cite you other plants of our make that are doing equally as well.

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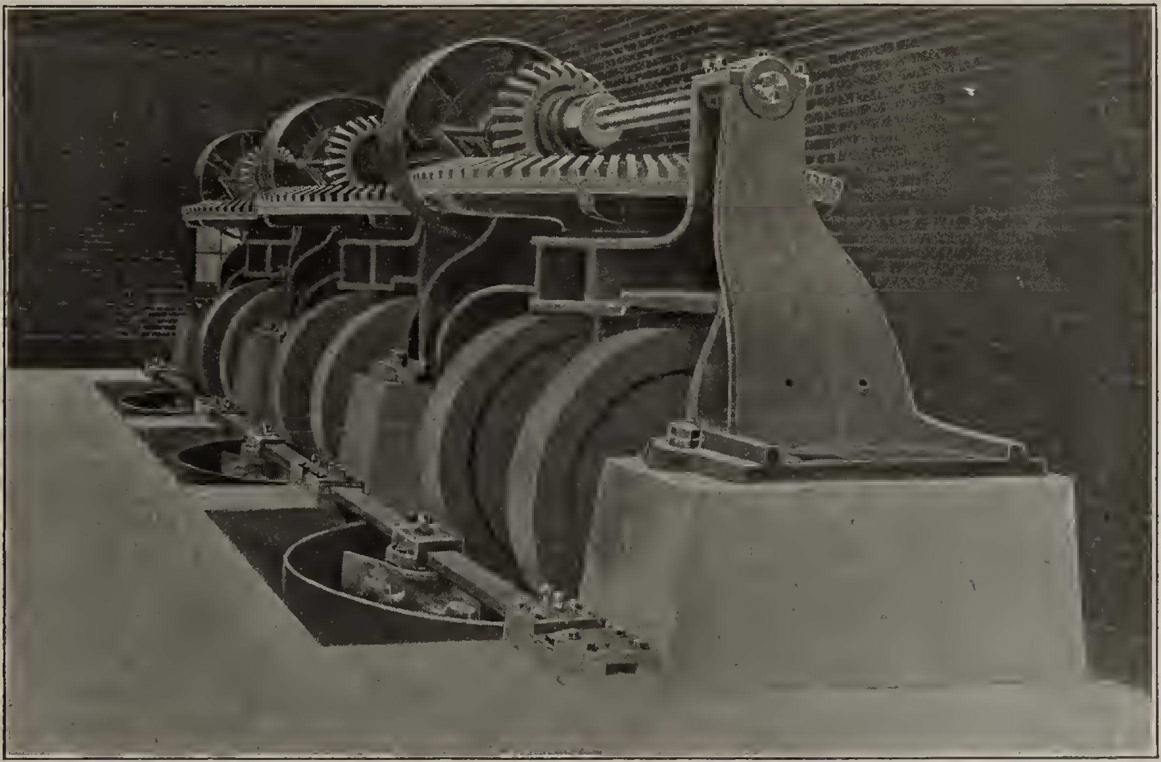
# THE MEANS ENGINEERING & FOUNDRY CO., Inc.

*...MANUFACTURERS OF...*

**SEWER PIPE PRESSES, DRY PANS, WET PANS, PUG MILLS, GRAVITY ELEVATORS, SEWER PIPE, FLUES, COPING, DRAIN TILE, CONDUIT, FIREPROOFING DIES.**

TORONTO, JEFFERSON COUNTY, OHIO

**Drums, Cradles, Rounders, Shods, Chuck Boards, Trimmers, Conveyers, Pulleys and Bearings.**



**Side Lift Prong and Warehouse Trucks. Wheelbarrows for Sewer Pipe, Brick, Clay and all Clay Products.**

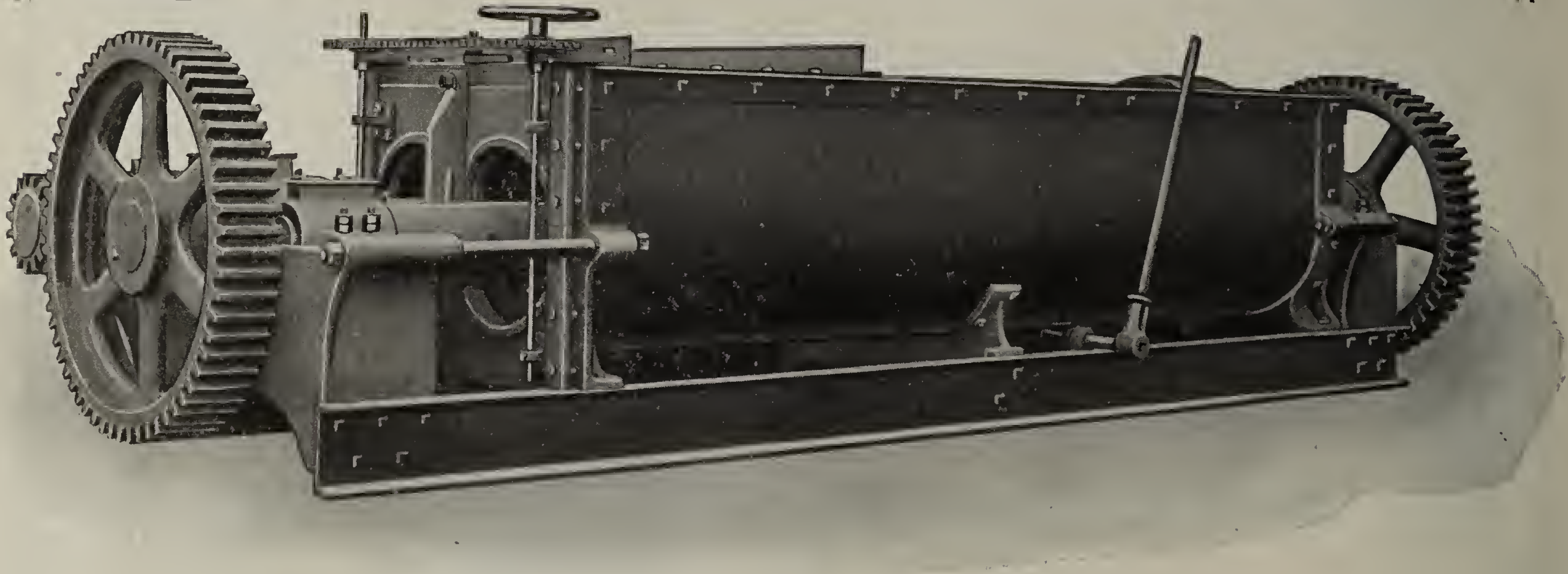
OUR NINE FOOT HEAVY DUTY DRY PAN

IF MARKED BREWER IT'S GOOD

# DOUBLE SHAFT PUG MILLS

A Pug Mill longer than ten or twelve feet is subject to expensive breakage. The shaft is too long and it is too far between bearings.

A ten-foot double shaft Pug Mill will do more pugging than a 20-foot single shaft machine and will "stand up" while doing it.



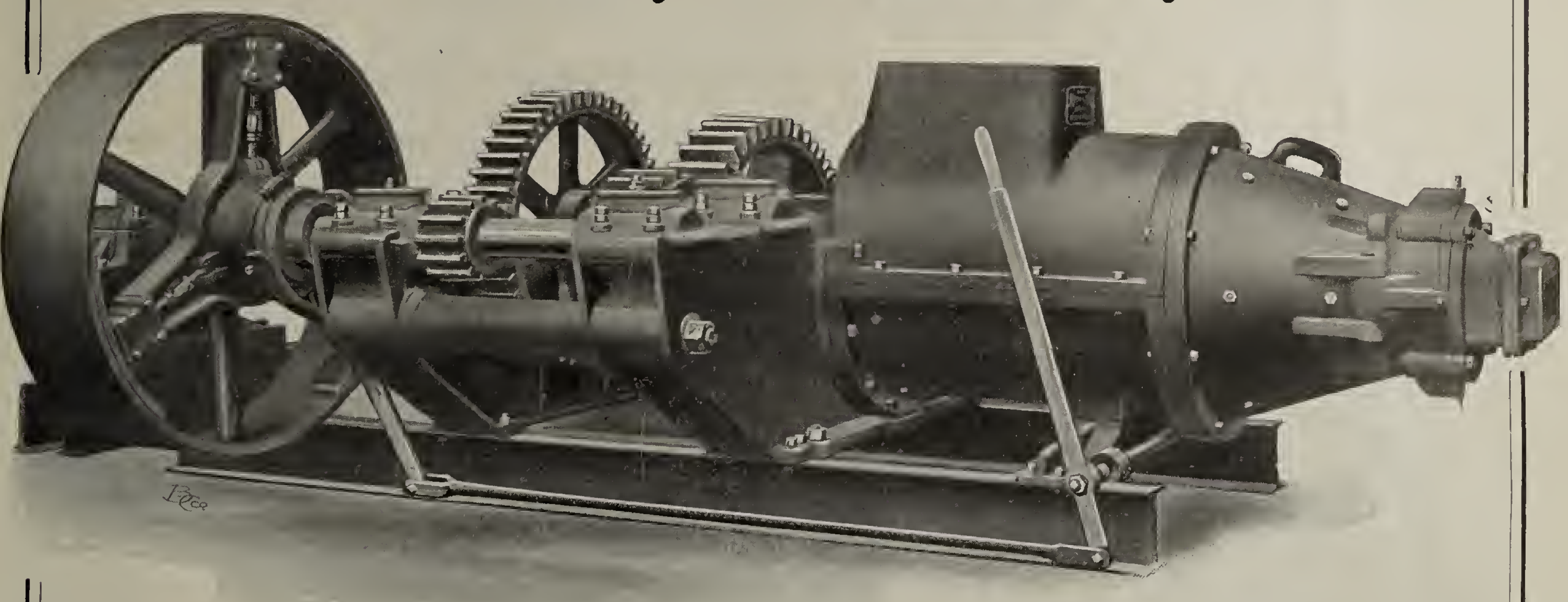
## THE BREWER No. 81

Is a 10-foot double shaft mill which weighs 12800 pounds. The pugging shafts are 7in. in diameter. The gears are 6 in. face. The knives (80 of them) are forged from hard, high carbon steel, each one independently adjustable for pitch. The clutch is a 29 in. disc pattern. Pulley solid iron 42x12.

Ask for complete catalog of Clay Working Machines, Brick Machines, Drain Tile Machines, Crushers, Pug Mills, Automatic Cutters, Hoists, Dry Pans, etc., etc.

**H. BREWER & CO.** BREWER **Tecumseh, Mich.**

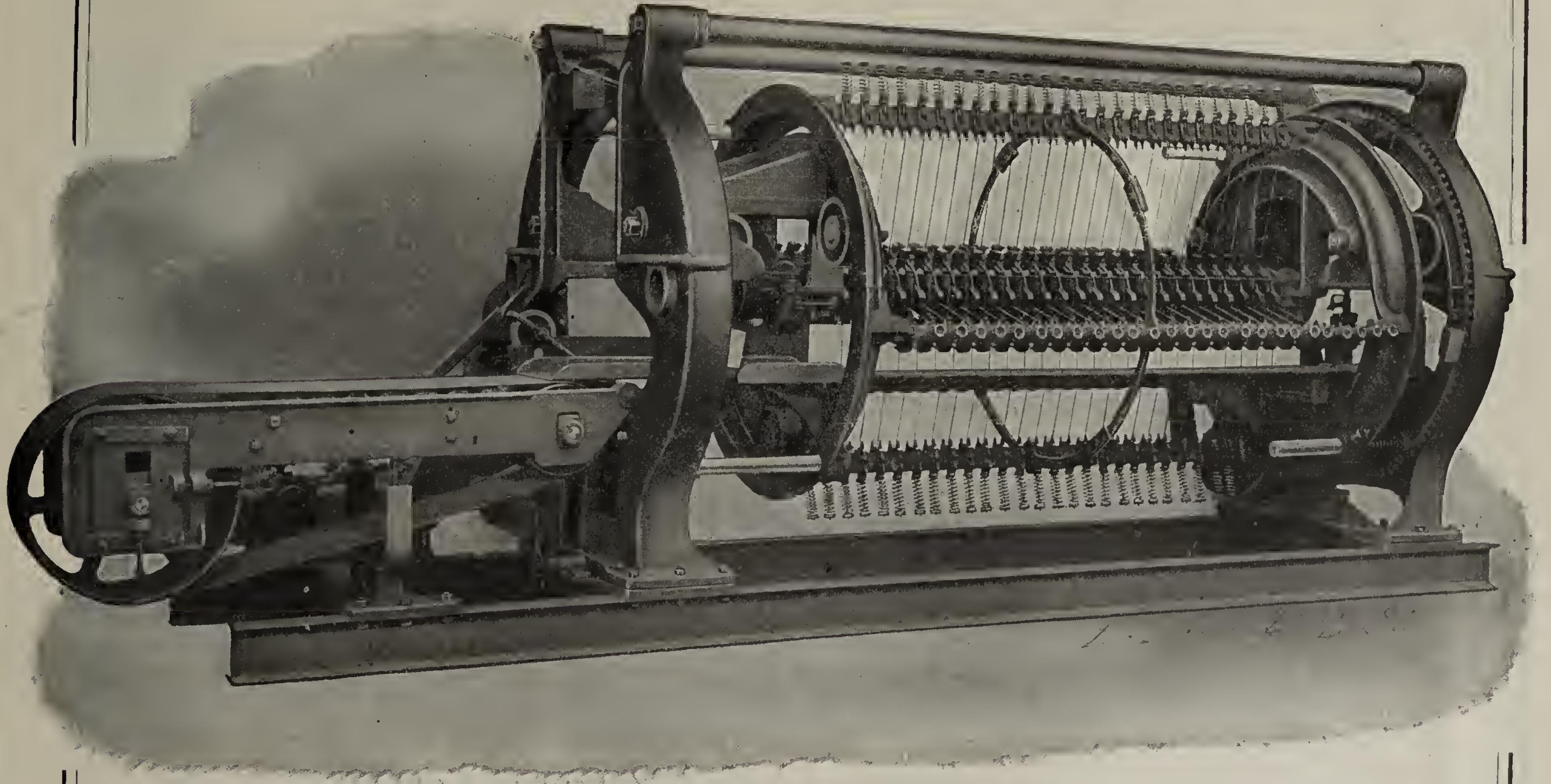
# Bonnot Machinery For Satisfactory Service



No. 10 Auger Machine. Capacity 50,000 to 75,000 Brick in 10 Hours.

*GET OUR CATALOG.*

## ASK THOSE WHO USE THEM



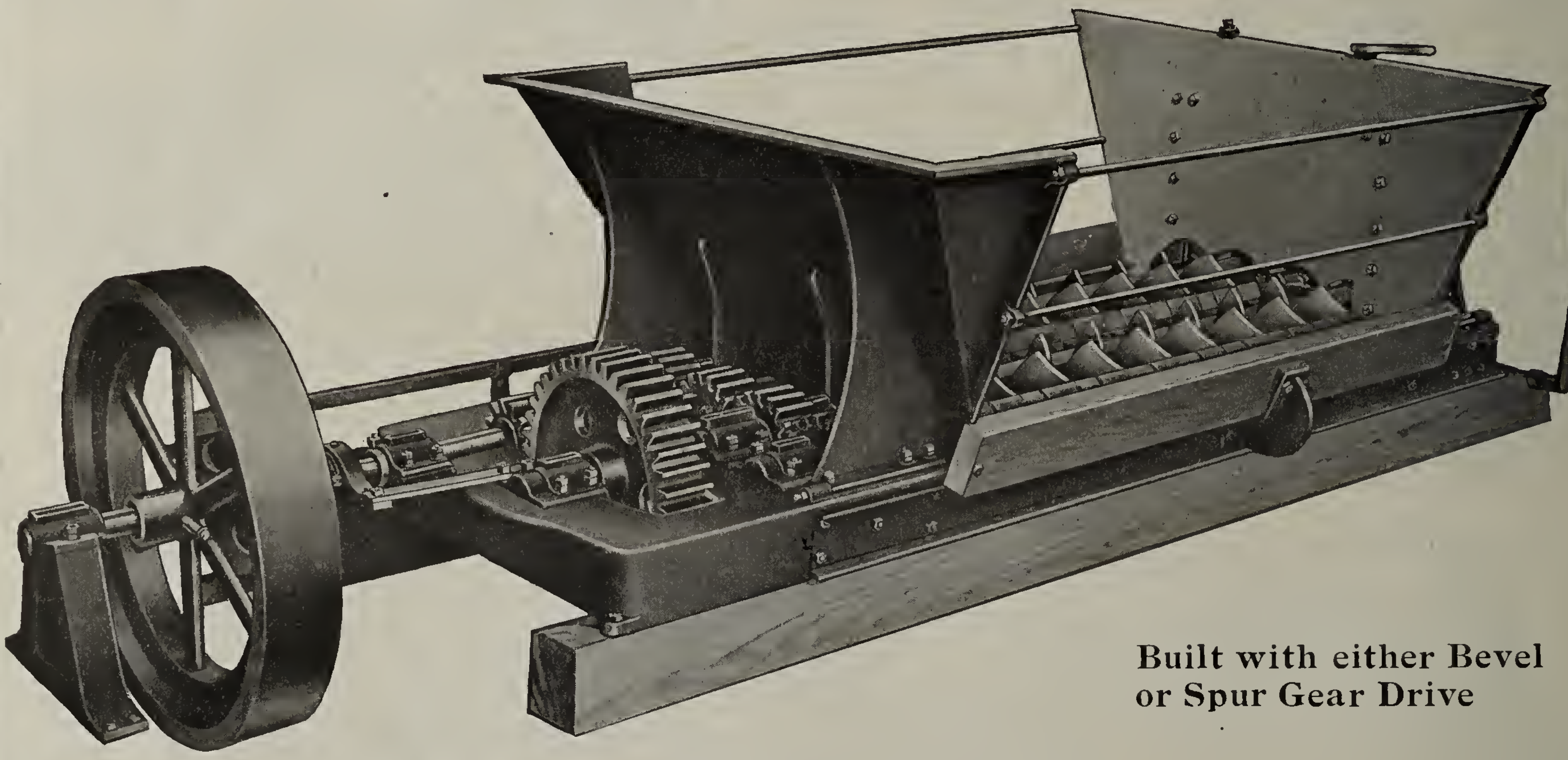
Only Rotary Automatic Cutting Table, with Cutting Frame next to Die of Machine. Capacity, 100,000 Brick in 10 hours.

## THE BONNOT COMPANY

909 New York Life Building, Kansas City, Mo. CANTON, OHIO

# THE ARBUCKLE GRANULATING CLAY FEEDER

### A great addition to the MADDEN Line

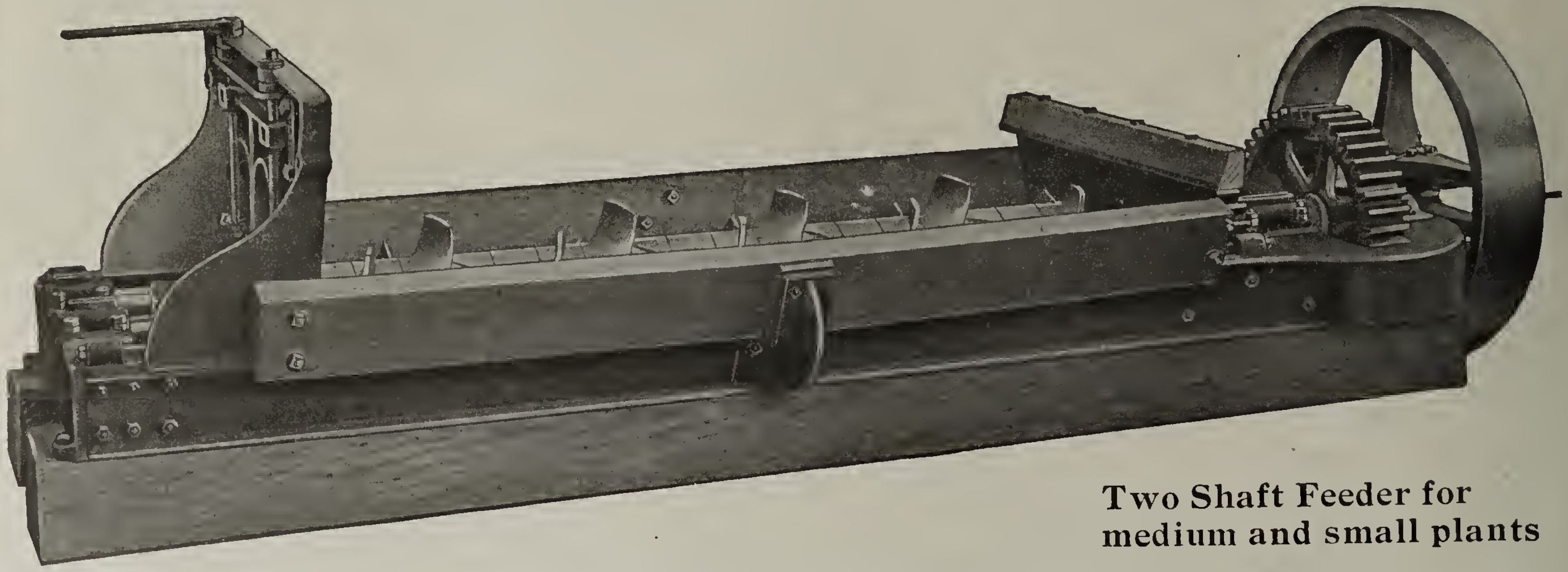


**Built with either Bevel or Spur Gear Drive**

This new Granulating Feeder has several advantages over any other on the market.

The Granulating Knives will do more pugging and prepare the clay better than any other machine built.

The machine is built stronger than others. Larger shafts, stronger gears, Hopper larger and more substantial. The adjustable gate in end of hopper controls the feed perfectly. A splendid machine, taking the place of both Feeder and Granulator. At a very reasonable price.



**Two Shaft Feeder for medium and small plants**

This is a great machine for the smaller plants. Will handle enough dirt for ten to twelve thousand four-inch tile per day, or fifteen to eighteen thousand brick, and will pug the clay up in fine shape.

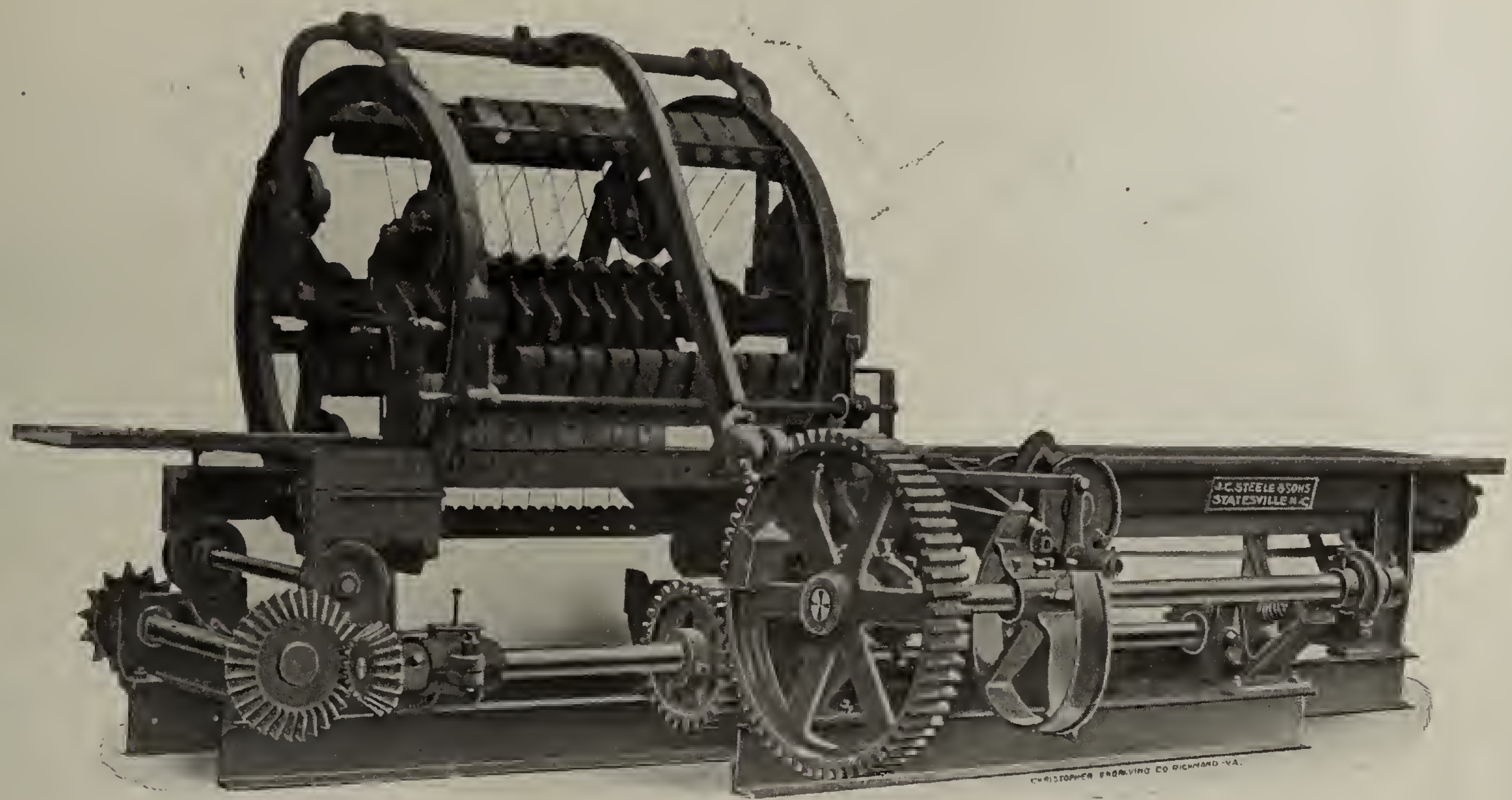
Note the heavy gears, Granulating Knives; Hopper can be built up to any height, and it will feed the clay just as you want it.

It is low in price, and no plant can afford to do without one. Write for prices.

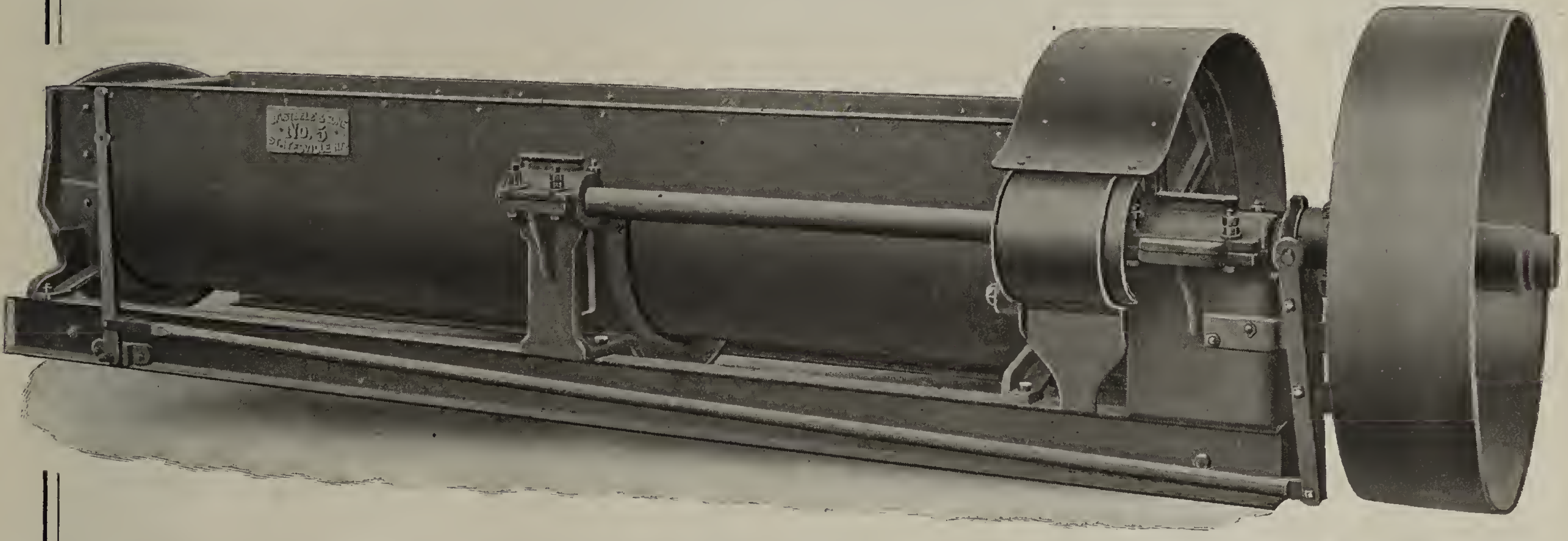
## ARBUCKLE & COMPANY

**Builders of Madden Brick and Tile Machinery** **RUSHVILLE, IND.**

*(Sold by Scott-Madden Iron Works Co., Keokuk, Iowa)*


J.C. STEELE & SONS STATESVILLE N.C.
CHRISTOPHER ENGRAVING CO RICHMOND VA.

A Plain, Substantial, Automatic Side Cut Cutter Simplified to the Last Notch
Made in sizes to suit the capacity desired.

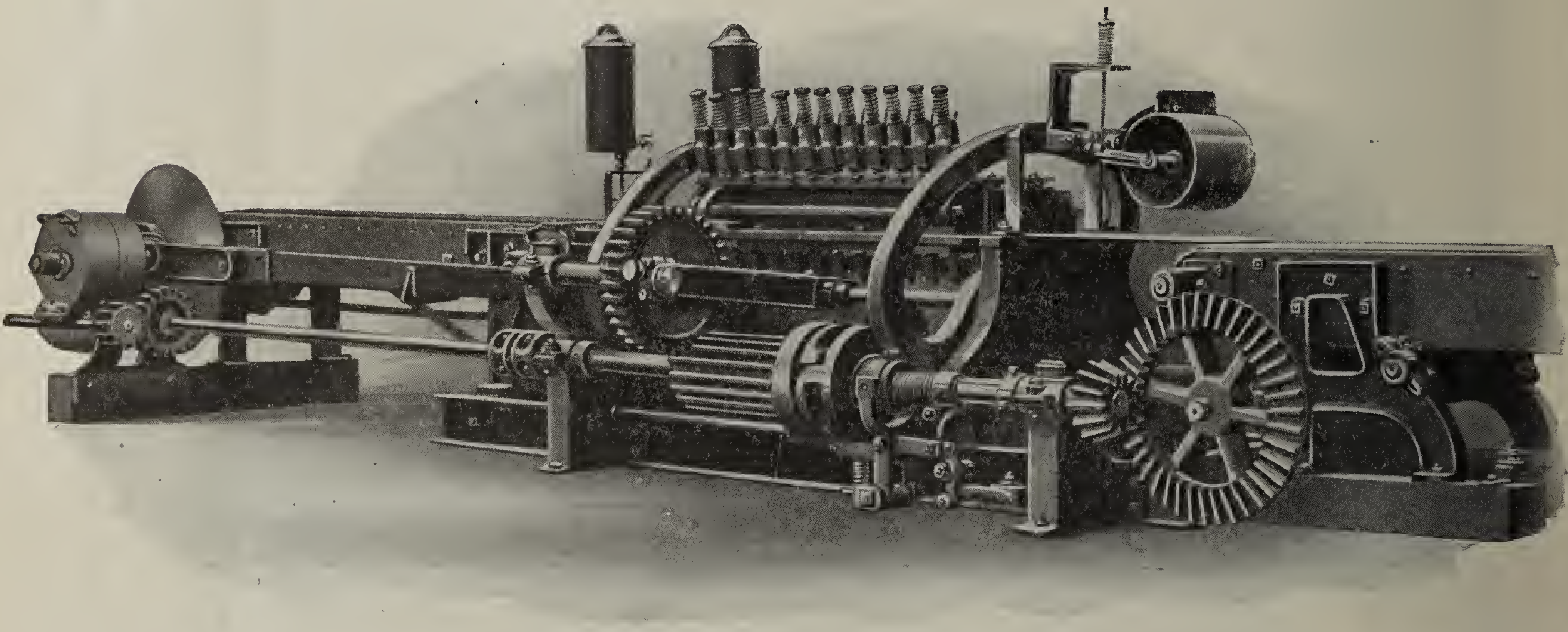


No. 5 Pug Mill
A Heavy, Powerfully Geared Pug Mill, simplified to the last notch. Has adjustable tempered steel knives.

*Write for New Catalogue*

# J. C. STEELE & SONS

## STATESVILLE, N. C.



Size 50 Reciprocating Automatic Cutter

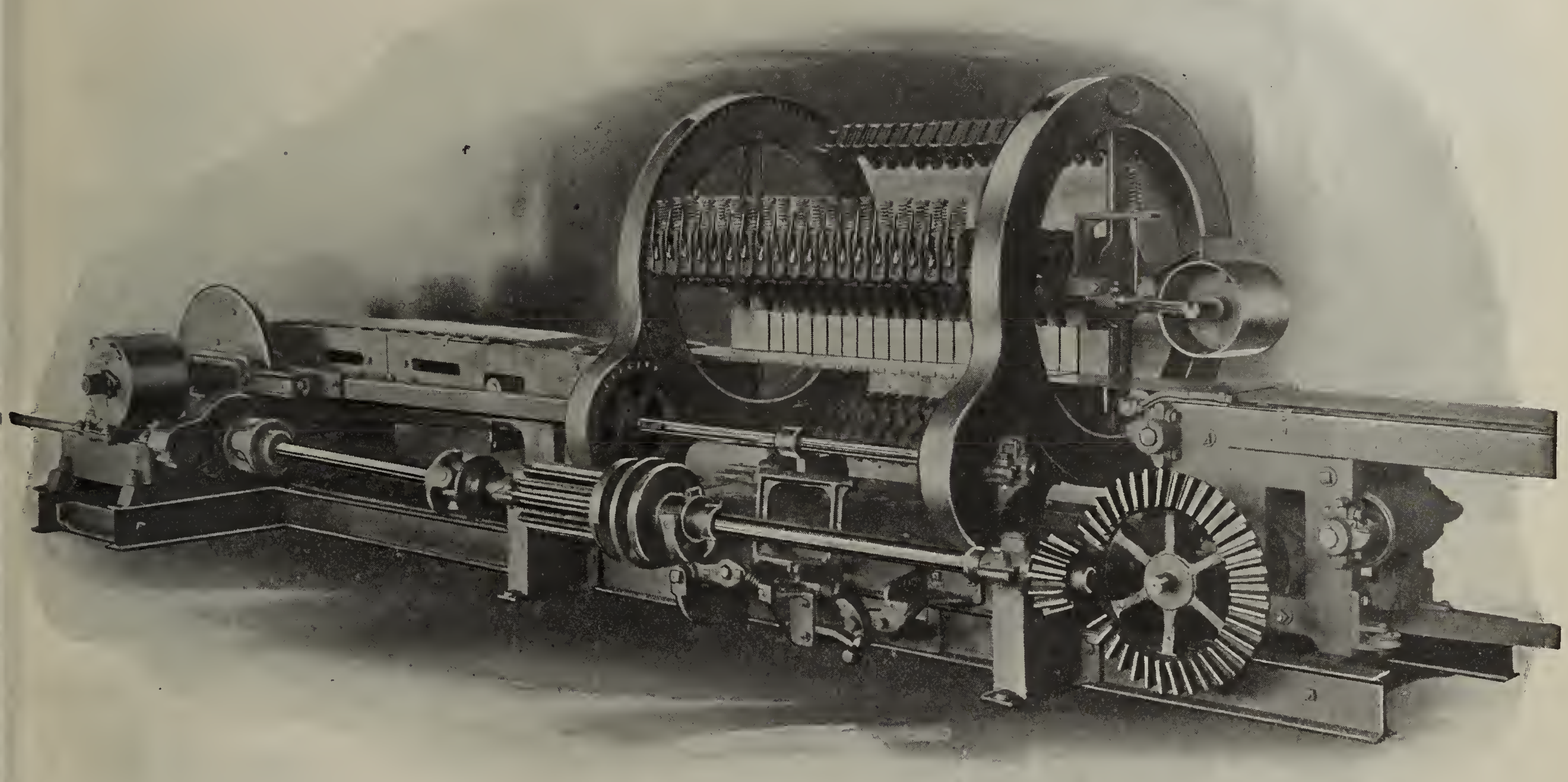
This apparatus, which is of the reciprocating type, is built in two sizes, "50" and "60", for capacities up to 10,000 brick per hour or more. The design is extremely simple. It embodies many of the well tried features of our Rotating Automatic Cutters.

The cutting frame carries only one set of cutting wires and has a swinging movement, avoiding the wear and play common to sliding parts. It is actuated by a crank, giving a smooth, quiet starting and stopping of the cutting stroke. Ample time to renew broken wires while the frame is stationary.

The platens are very easily removed and replaced when the thickness of cut is to be changed. Only 4 bolts to be removed, when the platen can be lifted out. An adjustable upper platen can be furnished to prevent ragging of the upper edges of the brick. This is automatically lifted to clear the clay column after the cut has been completed and is returned to position in time for the next cut, avoiding any tendency for the clay to become wedged.

Either size Cutter is made to suit a variety of work—and can also be especially arranged for cutting the Dunn Wire-cut Lug paving blocks. The Size 60 is built special to accommodate the largest sizes of fireproofing, etc.

**E. M. FREESE & CO., Galion, Ohio**



# Size 20 Rotating Automatic Cutter

We build rotating automatic cutters in various sizes and capacities. They are successfully used for solid brick of ordinary sizes, also for hollow ware, fireproofing, radial chimney blocks, etc., up to 13½"x7½".

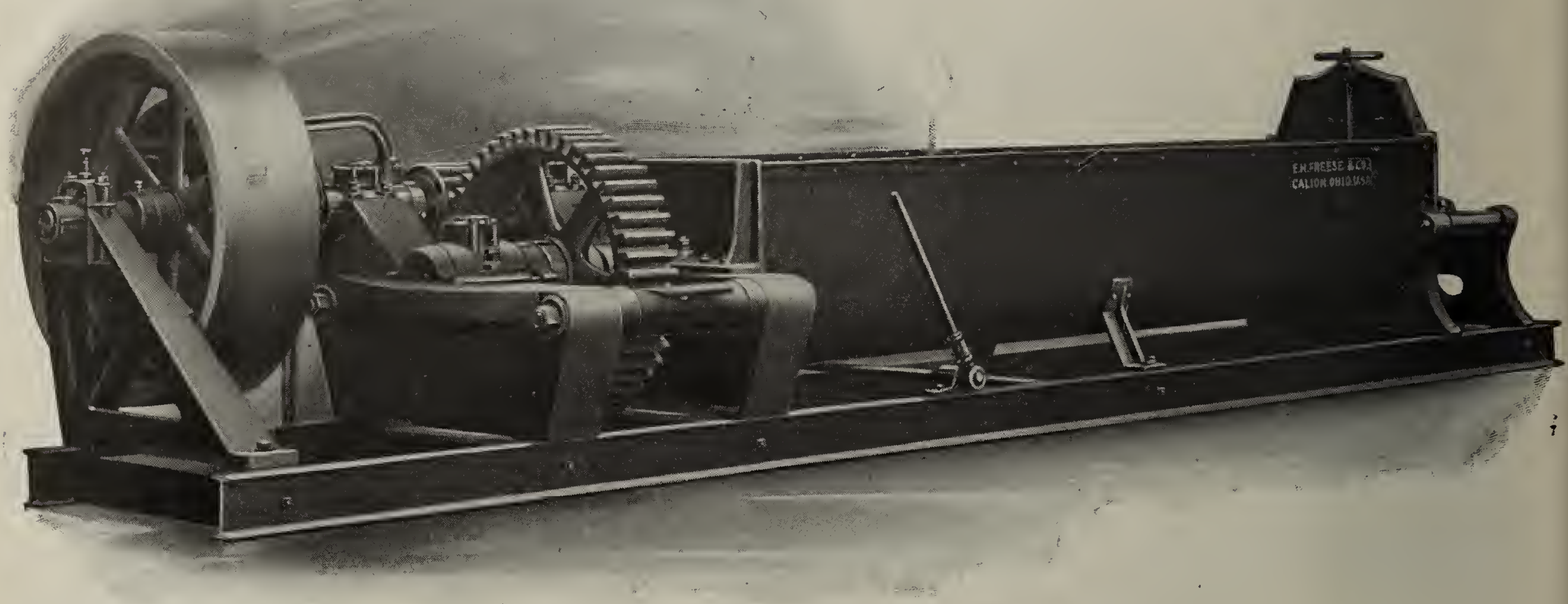
The above illustration shows the Size 20 Cutter, which is an improved model of our well-known Size 16. It is intended for capacities up to 7,500 standard size brick per hour—18 brick are cut at each cut. At this speed the cutting reel makes only a little over two revolutions per minute, remaining stationary between cutting strokes. It is never necessary to stop the brick machine to renew broken wires, as this gives ample time.

The cutting apparatus, including drive for separating belt, is entirely self-contained, being mounted upon one set of I-beam sills, assuring permanent alignment of all parts. The measuring and separating tables are built with iron or steel sides.

Cutting reel and carriage are carried on rollers requiring little or no oiling. Carriage is positively moved with the clay by an accurate cam. Clutch mechanism is the simplest possible. Wearing surfaces have renewable steel plates.

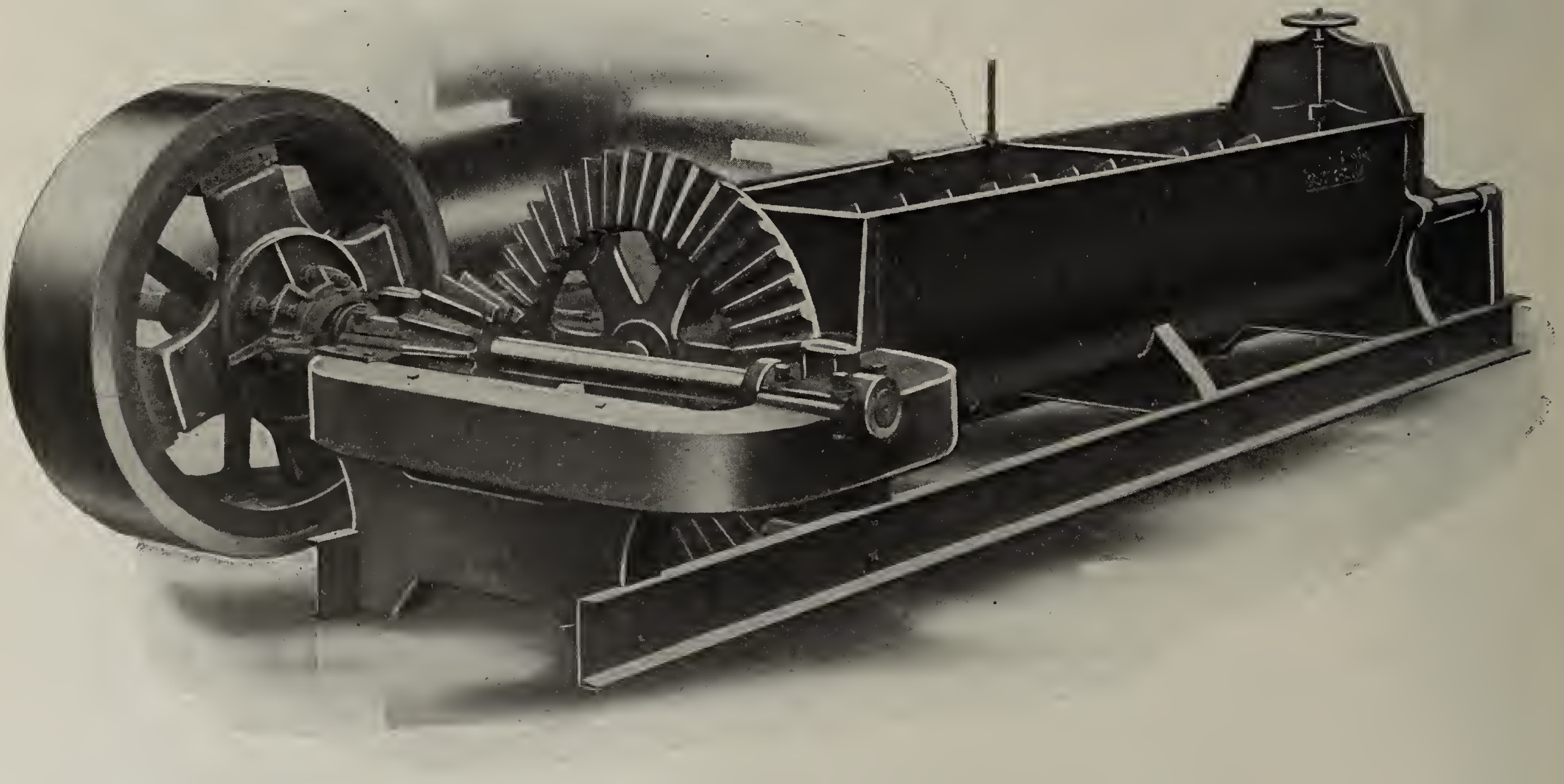
Particular attention is called to the platen construction. The platen is cast in one piece of tubular cross section and is very rigid. Surfaces covered with renewable steel plates, insuring fine slots. The angle of the cutting wires has been changed to give perfect edges on the brick. Built to give long service without skilled attention. Complete description will be furnished on request.

**E. M. FREESE & COMPANY, Galion, Ohio**



We are building Pug Mills in great variety—more than forty patterns and sizes. The above is an example of a heavy, direct-geared machine of large capacity, designed for most exacting requirements.

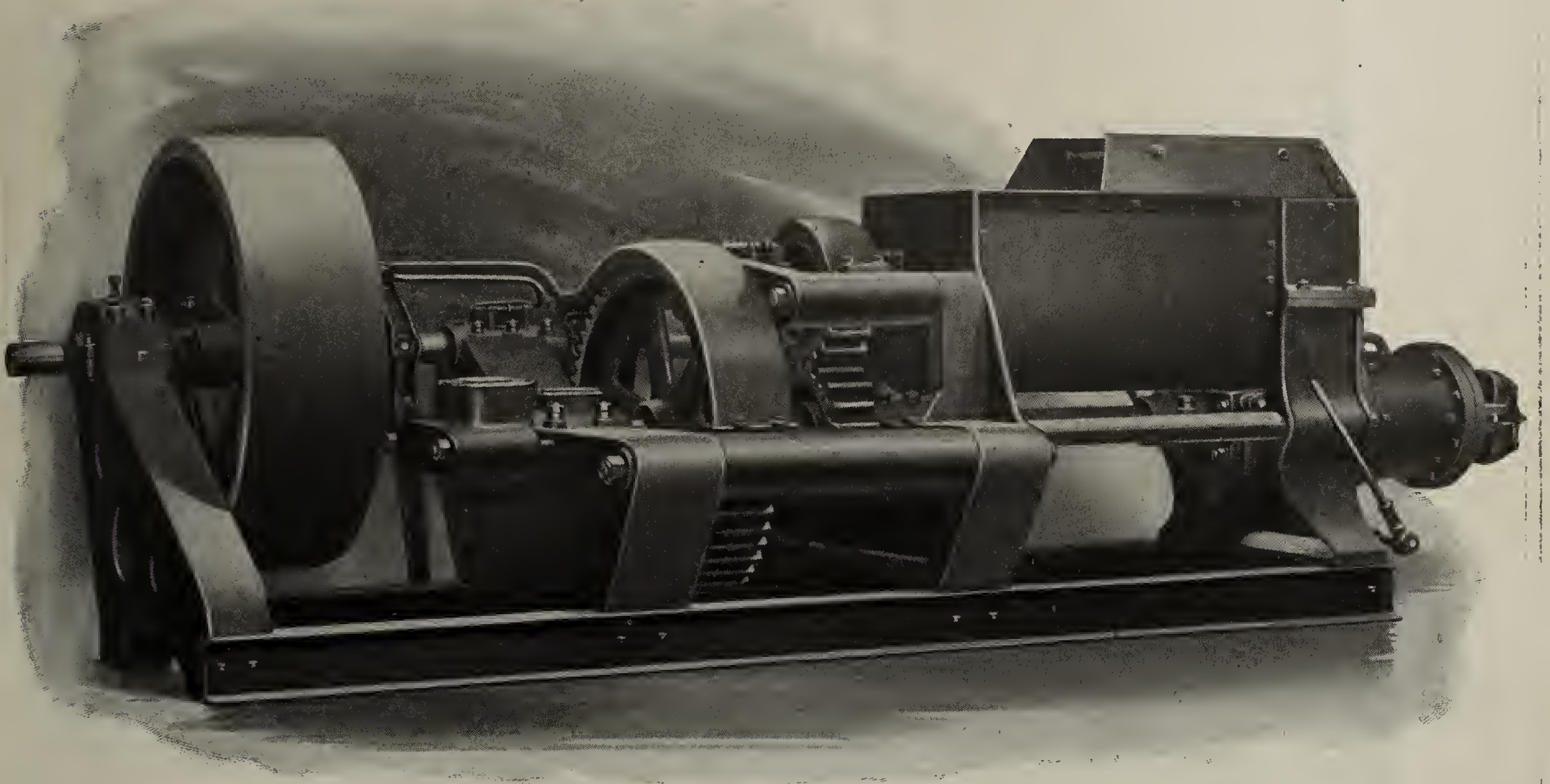
Let us send you particulars



This is an example of a bevel geared Pug Mill built in several sizes. These machines embody many desirable features. We furnish both bevel and spur gear Pug Mills of all sizes, arranged to discharge at either end, as may be specified. We believe we are in position to furnish more value for the price than can be obtained elsewhere.

Write us now

**E. M. FREESE & COMPANY, Galion, Ohio**



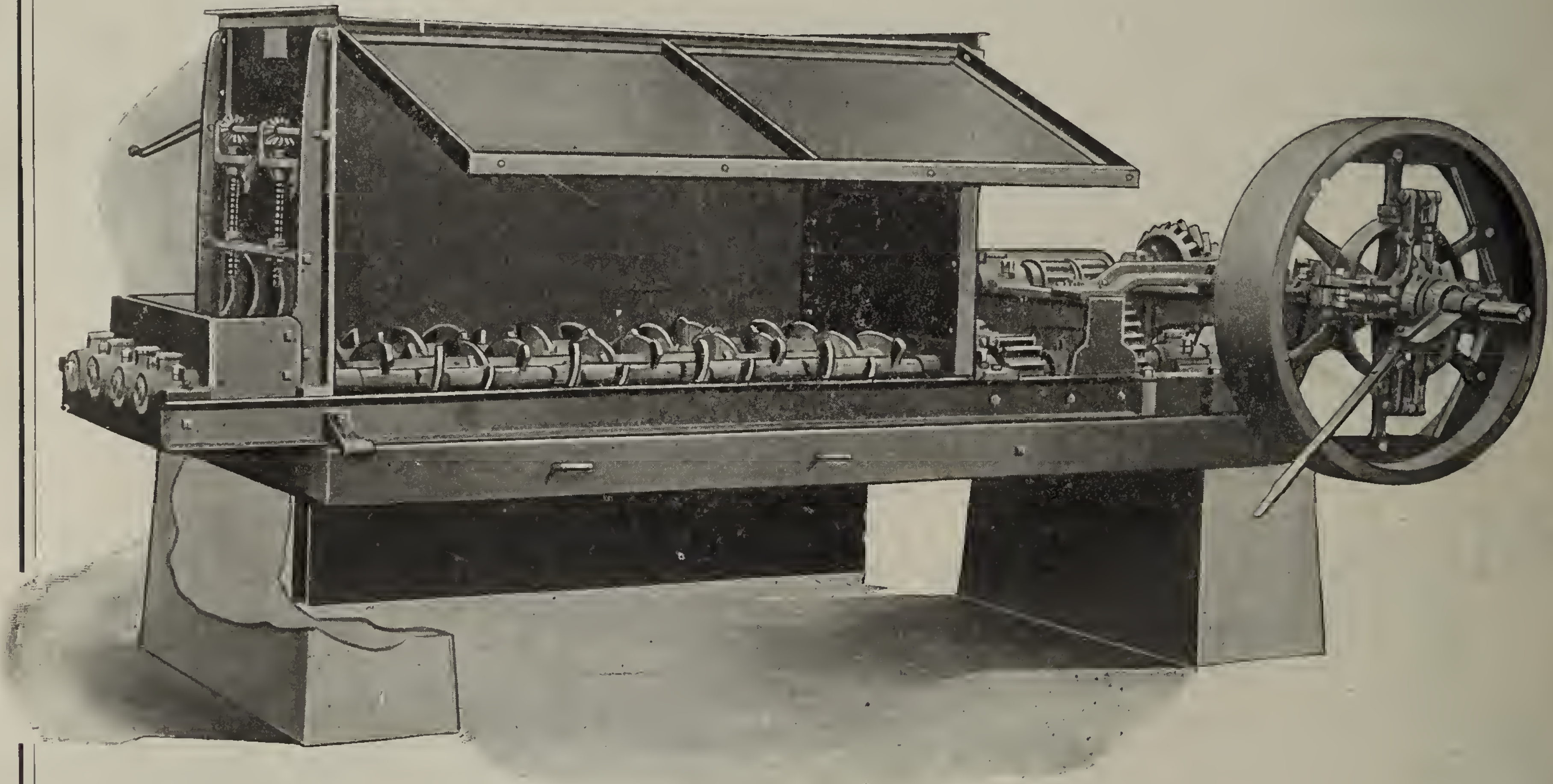
# Model "K" Auger Brick Machine

This machine has several features of merit. The construction is simple. The parts conveniently accessible. Each of its three shafts has three journal bearings, insuring substantial support for the gearing and more permanent alignment. The feeding chamber is open its entire length and the auger chamber is kept positively and uniformly supplied with clay. The gearing is designed for smooth and quiet operation. All the shafts are of large diameter and the proportions throughout are extremely heavy. The workmanship and material are of the best.

Intended for first-class product and economical operation.

**E. M. FREESE & COMPANY, Galion, Ohio**

# THE VERY LATEST



# IMPROVEMENT IN CLAY FEEDERS

**THE J. D. FATE CO., Plymouth, Richland Co., Ohio**

Manufacturers Equipment Co., Dayton, Ohio, Sales Agents

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